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a

直线导轨系统
Linear Rail System

技术数据/直线导轨系统类型/SBI高负载直线导轨系统/SBG标准直线导轨系统/SPG/SPS间隔器直线导轨系统/微型直线导轨系统

Technical Data / The Types of Linear Rail System / SBI High-load Linear Rail System / SBG Standard Linear Rail System / SPG, SPS Spacer Linear Rail System / Miniature Linear Rail System

直线导轨系统
Linear Rail System

技术数据
Technical Data

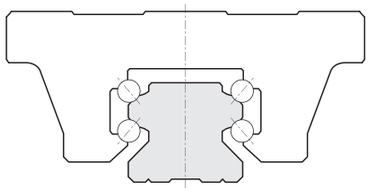
SBC直线导轨系统的特性
SBC LINEAR RAIL SYSTEM FEATURES

- 圆弧形滚动面结构能确保高刚度和更大的容许载荷。
- 具有2点接触的4列圆弧槽能在所有方向上产生相同载荷。
- DF结构能确保减少仪器误差。
- 低摩擦系数可实现高能效。
- 易于维护。
- 提高设备的生产能力。
- 选项丰富、设备设计简单、使用寿命更长。

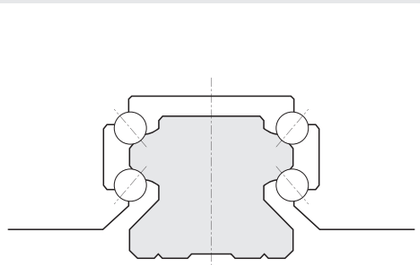
- Circular-Arc raceway structure achieves the high rigidity and large permissible load.
- Four row circular arc groove with 2 points contact creates the same load in all directions.
- DF structure maintains low instrumental errors.
- Low frictional coefficient achieves the high energy efficiency.
- Easy maintenance.
- Improve the productivity of the machine.
- Various options, Easy machine design and Longer life span.

直线导轨系统与其他系统的对比
Comparison the Linear Rail System with others

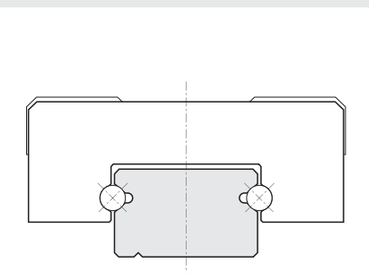
项目 Item	直线导轨系统 Linear Rail System	平面滚珠系统 Plane Ball System	滑动摩擦导轨 Sliding Friction Guide
组装 Assembly	自动调节 Self-adjusting	△	需要深度加工 Additional working need
精度 Precision	吸收误差 Absorbing errors	X	需要加工 Machining necessary
维护 Maintenance	各种润滑脂润滑法 Various grease feeding	○	难以使用润滑脂润滑 Hard to grease feeding
摇摆 Sway	○	○	X
冲击 Impact	○	额定载荷低 Low rating load	○
力矩 Moment	额定载荷高 High rating load	额定载荷低 Low rating load	易受偏心载荷影响 Vulnerable to eccentric load



DF结构
DF Structure
DF结构可确保减少仪器误差。
DF structure maintains low instrumental errors.
应用型号：SBI、SBG、SBS、SPG、SPS
Applied model : SBI, SBG, SBS, SPG, SPS



滚动面凹槽结构与滚珠触点
The Structure of Raceway Groove and Ball Contact
圆弧形凹槽、4个滚动面、2点接触结构能有效减少仪器误差，而且能在高负载条件下实现平稳运动。
Circular-Arc Groove, Four Raceway, Two-Point Contact Structure absorb the instrumental errors and create smooth movement even under high load operation.
应用型号：SBI、SBG、SBS、SPG、SPS
Applied Model : SBI, SBG, SBS, SPG, SPS



哥特式拱槽、双列、4点接触结构虽不能有效吸收误差，但它是需要在高载荷条件下平稳运行的微型设备的最佳选项。
Gothic-Arch Groove, Two Row, Four Point Contact Structure is not effective for absorbing errors but it is optimized for miniaturized machine which is necessary for smooth movement under high load condition.
应用型号：SBM、SBML、SBMW
Applied Model: SBM, SBML, SBMW

直线导轨系统
Linear Rail System

技术数据
Technical Data

额定载荷与使用寿命
Load Rating & Life

在正常条件下，由于重复应力产生的金属疲劳可能造成直线导轨系统的损坏。重复应力会导致滚动面和钢珠剥落。直线导轨系统的使用寿命是指系统在出现剥落前完成的总行程。

Under normal conditions, the linear rail system can be damaged by metal fatigue as the result of repeated stress. The repeated stress causes flaking of the raceways and steel balls. The life of linear rail system is defined as the total travel distance that the linear rail system travels until flaking occurs.

额定行程寿命：L （ km）
Nominal Life : L (km)

额定行程寿命的定义是，在相同条件下运行的一组完全相同的直线导轨系统在剥落90%以前的总行程（L=km）。

We define the nominal life as the total distance of travel (L=km) without flaking by 90% of a group of an identical group of linear rail systems operating under the same condition.

[采用滚珠时]
[In case of ball]

$$L = \left(\frac{C}{P}\right)^3 \times 50km$$

[采用滚子时]
[In case of roller]

$$L = \left(\frac{C}{P}\right)^{\frac{10}{3}} \times 100km$$

- L ：额定行程寿命 Nominal life
- P ：有效载荷 Pay load
- C ：基本额定动载荷 Basic dynamic load rating

基本额定动载荷：C （ kN） Basic Dynamic Load Rating : C (kN)

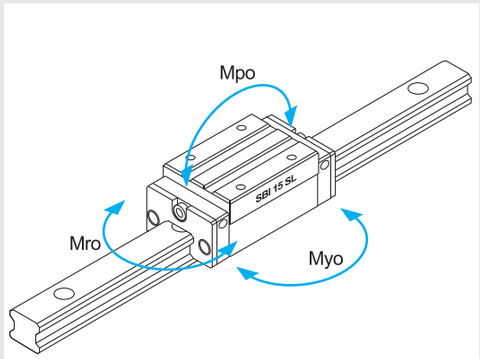
基本额定动载荷C是一个统计数值，它是依据90%的轴承在全负荷条件下完成50Km的行程计算的。

The basic dynamic load rating C is a statistical number and it is based on 90% of the bearings surviving 50Km of travel carrying the full load.

基本额定静载荷：Co （ kN） Basic Static Load Rating : Co (kN)

如果对静态或动态下的直线导轨系统施加过度的载荷或冲击，可能会造成钢珠和滚动面的局部永久变形。基本额定静载荷是指轴承能承受的不影响动态行程寿命的最大载荷。该值通常指滚动面的永久变形为滚珠直径的0. 0001倍。

If an excessive load or shock is applied to the linear rail system in the static or dynamic state, permanent but local deformation can occur to the steel balls and raceway. The Basic Static Load Rating is the maximum load the bearing can accept without affecting the dynamic life. This value is usually associated with a permanent deformation of the race way surface of 0.0001 time the ball diameter



容许静力矩：Mo （ kN. m）
Static Permissible Moment : Mo (kN.m)

这些载荷是能对轴承施加的不会损坏轴承或影响其动态行程寿命的最大力矩或转矩载荷。

These load are maximum moments or torque loads that can be applied to the bearing without damaging the bearing or affecting subsequent dynamic life.

- Mro：滚动方向力矩 Moment in rolling direction
- Mpo：俯仰方向力矩 Moment in pitching direction
- Myo：盘旋方向力矩 Moment in yawing direction

静安全系数：fs
Static Safety Factor : fs

在计算直线导轨系统上施加的载荷时，应同时考虑平均载荷和最大载荷。往复运动设备会产生惯性力矩。在选择适用的直线导轨系统时，必须考虑所有载荷

When calculating a load exerted on the linear rail system, both mean load and maximum load need to be considered. Reciprocating machines create moment of inertia. When selecting the right linear rail system, consider all of the loads.

$$f_S = \frac{C_O}{P}$$ （径向载荷） (Radial Load)

$$f_S = \frac{M_O}{M}$$ （径向载荷） (Moment Load)

- Co ：基本额定静载荷 Basic Static Load Rating
- P ：有效载荷 Pay Load
- Mo ：容许静力矩（Mpo、Mro、Myo） Static Permissible Moment (Mpo, Mro, Myo)
- M ：有效载荷力矩 Pay Load Moment

（静安全系数表）
(Table, Static Safety Factor)

运行 Operating	载荷条件 Load conditions	fs
正常静止 Normally stationary	施加冲击载荷或设备偏差小 Impact load or machine deflection is small	1.0 ~ 1.3
	施加冲击或扭曲载荷 Impact or twisting load is applied	2.0 ~ 3.0
正常移动 Normally moving	施加正常载荷或设备偏差小 Normal load is exerted or machine deflection is small	1.0 ~ 1.5
	施加冲击或扭曲载荷 Impact or twisting load is applied	2.5 ~ 7.0

直线导轨系统
Linear Rail System

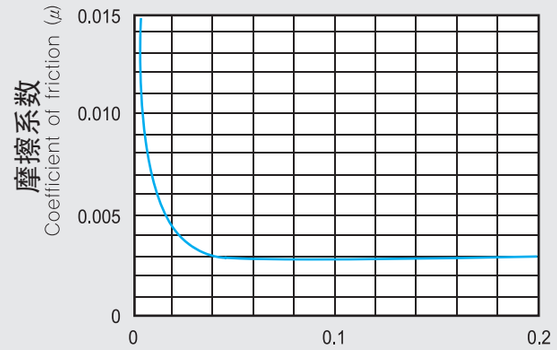
技术数据
Technical Data

摩擦阻力
Frictional Resistance

SBC直线导轨系统的静态和动态摩擦系数极小，以致能最大限度减少所需的驱动力和升温幅度。摩擦阻力取决于载荷、有效载荷、速度和润滑。通常，轻载荷以高速运行时更易受到润滑的影响，而中等或重载荷运行更易受载荷的影响，不易受润滑选项的影响。

The static and dynamic coefficient of friction of the SBC linear rail systems are so small that they minimize the required driving force and temperature increase. Frictional force depends on load, preload, velocity and lubrication. In general, the light load with high speed is more affected by the lubricant, while the medium or heavy load are more affected by the load and are less sensitive to lubrication selection.

*直线导轨系统的摩擦系数（μ）：0.002～0.004
*Coefficient of friction for linear rail system(μ) : 0.002~0.004



（有效载荷与摩擦系数之间的关系）(Relationship between pay load and coefficient of friction)

P：载荷
Load

C：基本额定动载荷
Basic dynamic load rating

不同导轨系统的计算对比
Calculate comparison by different guide system

$F = \mu \cdot P$

- F ：摩擦力 Frictional force
- μ ：摩擦系数 Coefficient of friction
- P ：载荷 Load

(1) 直线导轨系统 Linear rail system

P : 5000N

μ : 0.003

F = 0.003 x 5000N = **15N**

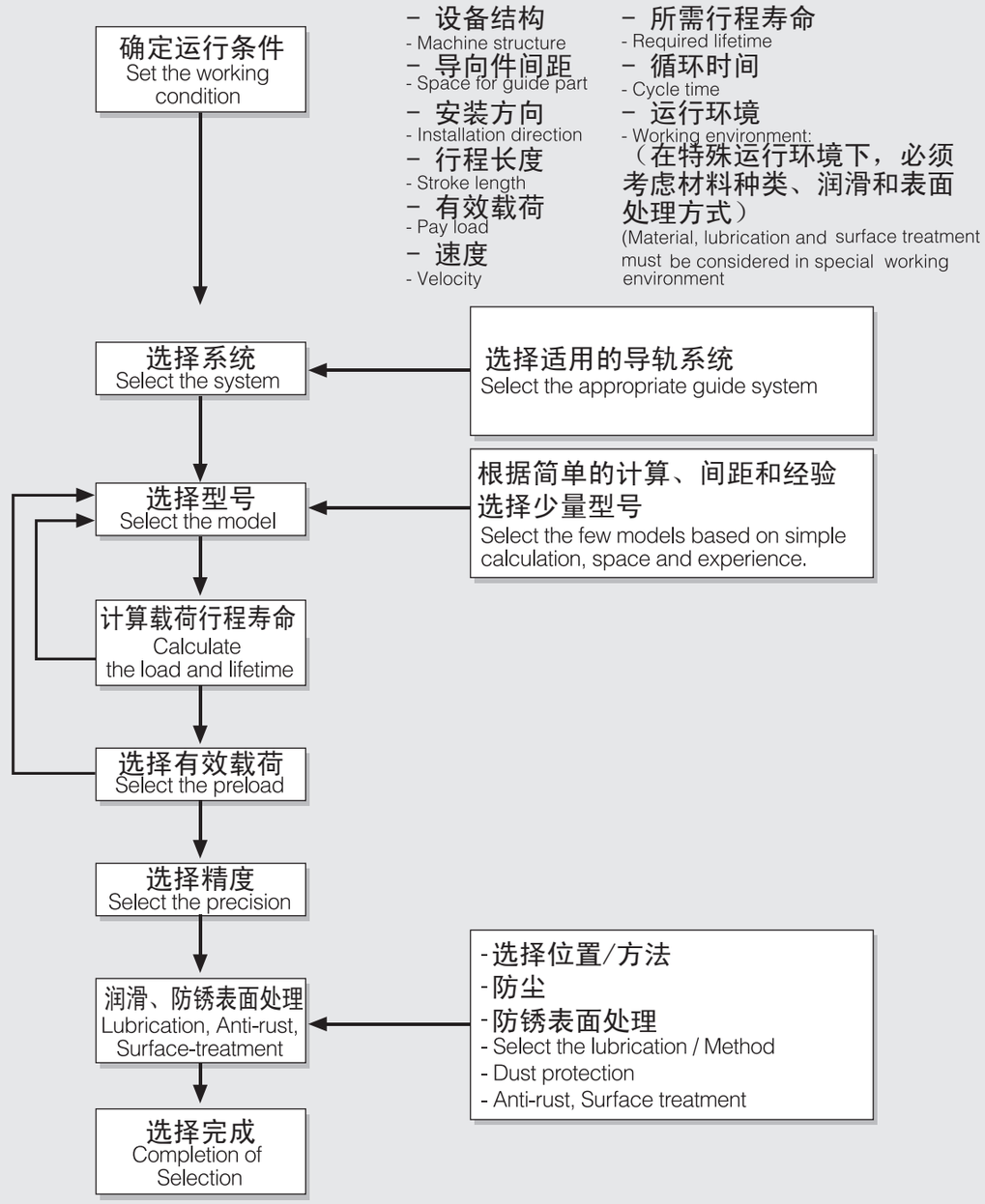
(2) 直线滑动导轨系统 Sliding linear rail system

P : 5000N

μ : 0.2

F = 0.2 x 5000N = **1000N**

直线导轨系统的选择步骤
The procedure of selecting linear rail system



选择系统/型号
Select the system / Model

1. 选择系统 Select System

考虑了刚度、加工成本和生产时间后选择适用的导轨系统。
Select the appropriate guide system after considering rigidity, cost of machine and manufacturing time.

2. 选择型号 Select Model

根据简单的计算、间距和经验选择少量型号。
Select the few models based on simple calculation, space and experience.

3. 计算载荷和行程寿命 Calculate the load and life time

计算完载荷和行程寿命后确定预期行程寿命并将型号用于设备设计。
Judge the expected life time after calculating the load and life time and apply the model to machine design.

3-1. 计算施加载荷 Calculating the applied loads

在直线导轨系统上施加的载荷会因方向不同而变化。在选择直线导轨系统的类型和型号之前必须考虑这种条件。计算载荷时请参照下列实例。
Loads exerted on a linear rail system vary according to direction. It is important to consider this condition before selecting the type of linear rail systems and model. Refer to the below example when calculating the loads.

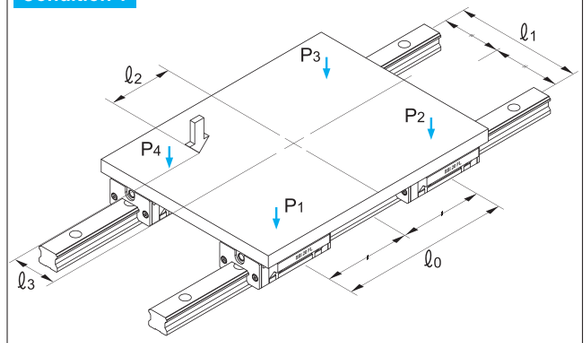
[计算施加载荷的条件]
[Condition of calculating the applied load]

根据间距、经验和运行条件的简单计算选择少量型号。
Select the few models after considering space and experience and simple calculation for working conditions.

- m (kg) : 载荷 Load
- ℓ_n (mm) : 行程（㎜）Distance(mm)
- P_n : 径向载荷 Radial load
- P_{nT} : 横向载荷 Lateral load
- g (m/s²) : 重力加速度（= 9.8 m/s2）Gravitational acceleration (=9.8 m/s²)
- V (m/s) : 速度 Velocity
- an (m/s²) : 加速度 Acceleration

计算施加载荷和行程寿命
Calculating the applied loads and life time

条件1 Condition 1 水平轴 Horizontal axis



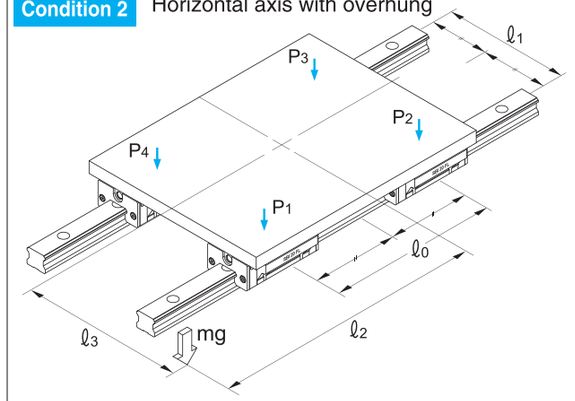
$$P_1 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_2 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell}$$

$$P_3 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_4 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

条件2 Condition 2 悬伸水平轴 Horizontal axis with overhung



$$P_1 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_2 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell}$$

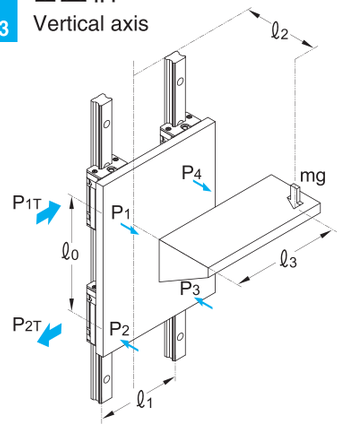
$$P_3 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_4 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

直线导轨系统
Linear Rail System

技术数据
Technical Data

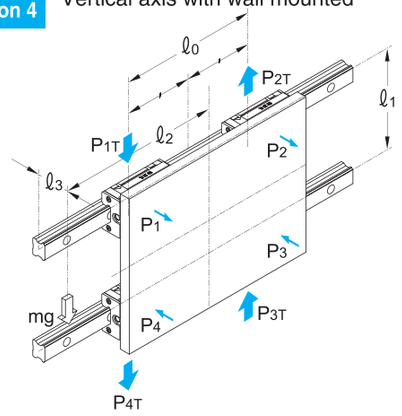
条件3 垂直轴
Condition 3 Vertical axis



$$P_{1} \sim P_{4} = \frac{mg \cdot \ell_2}{2 \cdot \ell_0}$$

$$P_{1T} \sim P_{4T} = \frac{mg \cdot \ell_3}{2 \cdot \ell_0}$$

条件4 壁挂垂直轴
Condition 4 Vertical axis with wall mounted

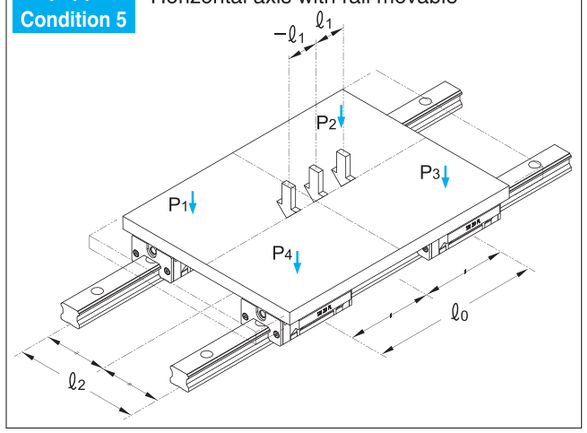


$$P_{1} \sim P_{4} = \frac{mg \cdot \ell_3}{2 \cdot \ell_1}$$

$$P_{1T} \sim P_{4T} = \frac{mg}{4} + \frac{mg \cdot \ell_2}{2 \cdot \ell_0}$$

$$P_{2T} \sim P_{3T} = \frac{mg}{4} - \frac{mg \cdot \ell_2}{2 \cdot \ell_0}$$

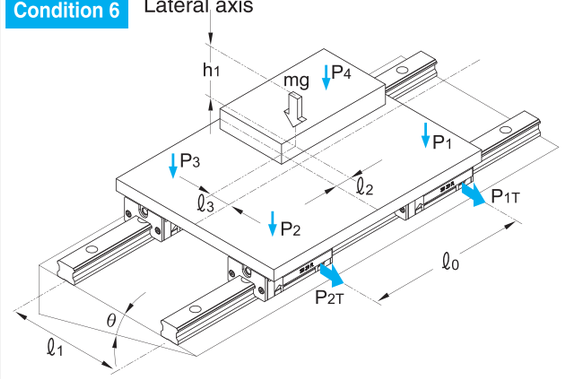
条件5 可移动导轨水平轴
Condition 5 Horizontal axis with rail movable



$$P_{1} \sim P_{4\,(max)} = \frac{mg}{4} + \frac{mg \cdot \ell_1}{2 \cdot \ell_0}$$

$$P_{1} \sim P_{4\,(min)} = \frac{mg}{4} - \frac{mg \cdot \ell_1}{2 \cdot \ell_0}$$

条件5 横向轴
Condition 6 Lateral axis



$$P_{1} = \frac{mg \cdot \cos\theta}{4} + \frac{mg \cdot \cos\theta \cdot \ell_2}{2 \cdot \ell_0} - \frac{mg \cdot \cos\theta \cdot \ell_3}{2 \cdot \ell_1} + \frac{mg \cdot \sin\theta \cdot h_1}{2 \cdot \ell_1}$$

$$P_{1T} = \frac{mg \cdot \sin\theta}{4} + \frac{mg \cdot \sin\theta \cdot \ell_2}{2 \cdot \ell_0}$$

$$P_{2} = \frac{mg \cdot \cos\theta}{4} - \frac{mg \cdot \cos\theta \cdot \ell_2}{2 \cdot \ell_0} - \frac{mg \cdot \cos\theta \cdot \ell_2}{2 \cdot \ell_1} + \frac{mg \cdot \sin\theta \cdot h_1}{2 \cdot \ell_1}$$

$$P_{2T} = \frac{mg \cdot \sin\theta}{4} - \frac{mg \cdot \sin\theta \cdot \ell_2}{2 \cdot \ell_0}$$

$$P_{3} = \frac{mg \cdot \cos\theta}{4} - \frac{mg \cdot \cos\theta \cdot \ell_2}{2 \cdot \ell_0} + \frac{mg \cdot \cos\theta \cdot \ell_3}{2 \cdot \ell_1} - \frac{mg \cdot \cos\theta \cdot h_1}{2 \cdot \ell_1}$$

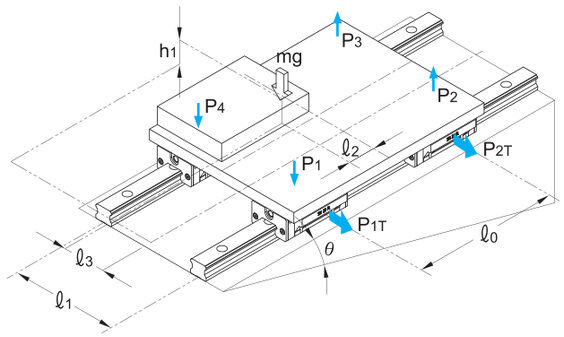
$$P_{3T} = \frac{mg \cdot \sin\theta}{4} + \frac{mg \cdot \sin\theta \cdot \ell_2}{2 \cdot \ell_0}$$

$$P_{4} = \frac{mg \cdot \cos\theta}{4} + \frac{mg \cdot \cos\theta \cdot \ell_2}{2 \cdot \ell_0} + \frac{mg \cdot \cos\theta \cdot \ell_3}{2 \cdot \ell_1} - \frac{mg \cdot \sin\theta \cdot h_1}{2 \cdot \ell_1}$$

$$P_{4T} = \frac{mg \cdot \sin\theta}{4} + \frac{mg \cdot \sin\theta \cdot \ell_2}{2 \cdot \ell_0}$$

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条件7 Condition 7 纵向轴 Longitudinal axis



$$P_1 = \frac{mg\cdot\cos\theta}{4} + \frac{mg\cdot\cos\theta\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\cos\theta\cdot\ell_3}{2\cdot\ell_1} + \frac{mg\cdot\sin\theta\cdot h_1}{2\cdot\ell_0}$$

$$P_{1T} = \frac{mg\cdot\cos\theta\cdot\ell_3}{2\cdot\ell_0}$$

$$P_2 = \frac{mg\cdot\cos\theta}{4} - \frac{mg\cdot\cos\theta\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\cos\theta\cdot\ell_3}{2\cdot\ell_1} - \frac{mg\cdot\sin\theta\cdot h_1}{2\cdot\ell_0}$$

$$P_{2T} = \frac{mg\cdot\sin\theta\cdot\ell_3}{2\cdot\ell_0}$$

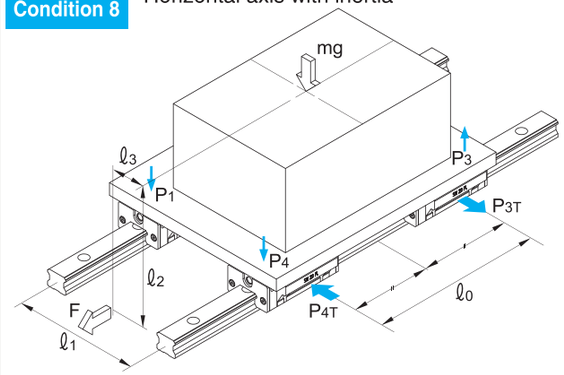
$$P_3 = \frac{mg\cdot\cos\theta}{4} - \frac{mg\cdot\cos\theta\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\cos\theta\cdot\ell_3}{2\cdot\ell_1} - \frac{mg\cdot\sin\theta\cdot h_1}{2\cdot\ell_0}$$

$$P_{3T} = \frac{mg\cdot\sin\theta\cdot\ell_3}{2\cdot\ell_0}$$

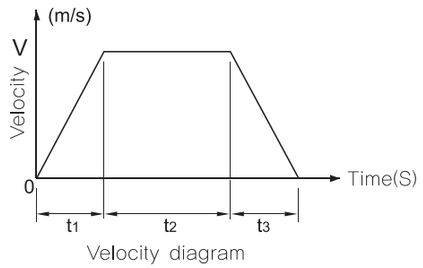
$$P_4 = \frac{mg\cdot\cos\theta}{4} + \frac{mg\cdot\cos\theta\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\cos\theta\cdot\ell_3}{2\cdot\ell_1} + \frac{mg\cdot\sin\theta\cdot h_1}{2\cdot\ell_0}$$

$$P_{4T} = \frac{mg\cdot\sin\theta\cdot\ell_3}{2\cdot\ell_0}$$

条件8 Condition 8 惯性力矩水平轴 Horizontal axis with inertia



$$\alpha_n = \frac{V}{t_n}$$



Velocity diagram

加速运行
Acceleration

$$P_1 = P_4 = \frac{mg}{4} - \frac{m\cdot\alpha_1\cdot\ell_2}{2\cdot\ell_0}$$

$$P_2 = P_3 = \frac{mg}{4} + \frac{m\cdot\alpha_1\cdot\ell_2}{2\cdot\ell_0}$$

$$P_{1T} = P_{4T} = \frac{m\cdot\alpha_1\cdot\ell_3}{2\cdot\ell_0}$$

匀速运行
In uniform motion

$$P_{1T} = P_{4T} = \frac{mg}{4}$$

减速运行
Deceleration

$$P_1 = P_4 = \frac{mg}{4} + \frac{m\cdot\alpha_3\cdot\ell_2}{2\cdot\ell_0}$$

$$P_2 = P_3 = \frac{mg}{4} - \frac{m\cdot\alpha_3\cdot\ell_2}{2\cdot\ell_0}$$

$$P_{1T} = P_{4T} = \frac{m\cdot\alpha_3\cdot\ell_3}{2\cdot\ell_0}$$

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3-2. 计算等效载荷 Calculating the Equivalent Load

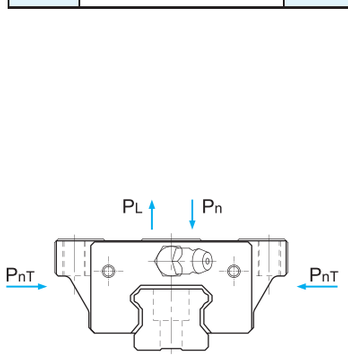
直线导轨系统能承受所有方向上的正常载荷和力矩载荷（Mro、Mpo、Myo），包括同时承受径向、逆径向和横向载荷。因此应相应计算等效载荷。

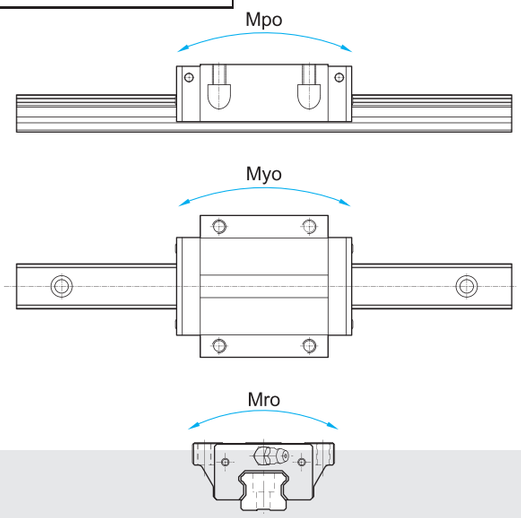
Linear Rail Systems can accept normal and moment (Mro, Mpo, Myo) loads in all directions including radial, reverse-radial and lateral loads at the same time. Therefore, calculate the equivalent load accordingly.

$$P_E \text{ (等效载荷Equivalent load)} = P_n + P_{nT}$$

P_n : 垂直载荷 Vertical load
P_{nT} : 水平载荷 Horizontal load

P_n	径向载荷 Radial load	Mro	滚动方向力矩 Moment in rolling direction
P_L	逆径向载荷 Reverse-radial load	Mpo	俯仰方向力矩 Moment in pitching direction
P_{nT}	横向载荷 Laterall load	Myo	盘旋方向力矩 Moment in yawing direction





3-3.3-3. 静安全系数（fs）Static Safety Factors (fs)

在计算直线导轨系统上施加的载荷时，应同时考虑平均载荷和最大载荷。往复运动设备会产生惯性力矩，因此在选择适用的直线导轨系统时，应考虑所有载荷。

When calculating a load exerted on the linear rail system, both mean and maximum load need to be considered. Reciprocating machines create moment of inertia. When selecting the right linear rail system, consider all of loads.

径向载荷大 Radial load is large	$\frac{f_H \cdot f_T \cdot f_C \cdot C_O}{P_n} \geqq f_S$
逆径向载荷大 Reverse-radial load is large	$\frac{f_H \cdot f_T \cdot f_C \cdot C_{OL}}{P_L} \geqq f_S$
横向载荷大 laterall load is large	$\frac{f_H \cdot f_T \cdot f_C \cdot C_{OT}}{P_{nT}} \geqq f_S$

静安全系数
- f_S : Static safety factor

基本静载荷（径向）
- C_O(N) : Basic static load rating (radial)

基本额定静载荷（逆径向）
- C_{OL}(N) : Basic static load rating (reverse-radial)

基本额定静载荷（横向）
- C_{OT}(N) : Basic static load rating (lateral)

计算载荷（径向）
- P_n(N) : Calculated load (radial)

计算载荷（逆径向）
- P_L(N) : Calculated load (reverse-radial)

计算载荷（横向）
- P_{nT}(N) : Calculated load (lateral)

硬度系数
- f_H : Hardness factor

温度系数
- f_T : Temperature factor

接触系数
- f_C : Contact factor

[静安全系数值（fs）]
[Value of static safety factor (fs)]

运行 Operating	载荷条件 Load conditions	fs下限 Lower limit of fs
正常静止 Normally stationary	冲击载荷或设备偏差小 Impact load or machine deflection is small	1.0 ~ 1.3
	施加冲击或扭曲载荷 Impact or twisting load is applied	2.0 ~ 3.0
正常移动 Normally moving	施加正常载荷或设备偏差小 Normal load is exerted or machine deflection is small	1.0 ~ 1.5
	施加冲击或扭曲载荷 Impact or twisting load is applied	2.5 ~ 7.0

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3-4. 计算平均载荷Calculating the Mean Load

在直线导轨系统上施加的载荷会因各种条件的不同而变化。必须考虑所有载荷条件以计算直线导轨系统所需的负载能力。

Loads acting on a linear rail system can vary according to various conditions. All load conditions must be taken into consideration in order to calculate the required linear rail system capacity

[平均载荷的计算公式 Equation for calculating the mean load]

$$P_m = \sqrt[3]{\frac{1}{L}\cdot\sum_{m=1}^{n}(P_n^3\cdot L_n)}$$

P_m : 平均载荷 Mean load (N)

P_n : 变化载荷 Varying load (N)

L : 行程总长 Total length of travel (mm)

L_n : 承载Pn的行程长度 Length of travel carrying P_n (mm)

1) 阶梯式变化载荷 Step loads

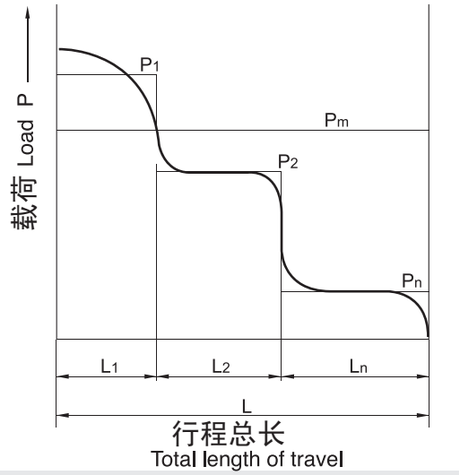
$$P_m = \sqrt[3]{\frac{1}{L}(P_1^3\cdot L_1+P_2^3\cdot L_2\cdots+P_n^3\cdot L_n)} \cdots\cdots (1)$$

P_m : 平均载荷 Mean load (N)

P_n : 变化载荷 Varying load (N)

L : 行程总长 Total length of travel (mm)

L^n : 承载Pn的行程长度 Length of travel carrying P^n (mm)

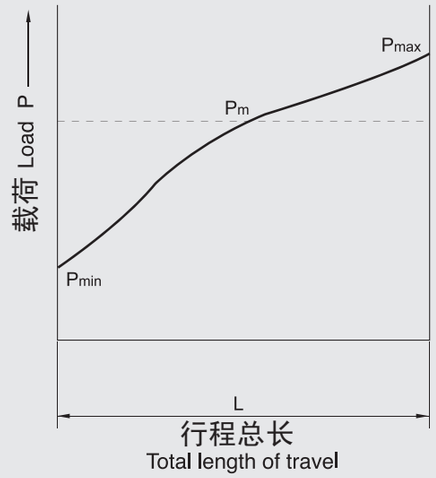


2) 单调变化载荷 Loads that vary linearly

$$P_m \fallingdotseq \frac{1}{3}(P_{min}+2\cdot P_{max}) \cdots\cdots (2)$$

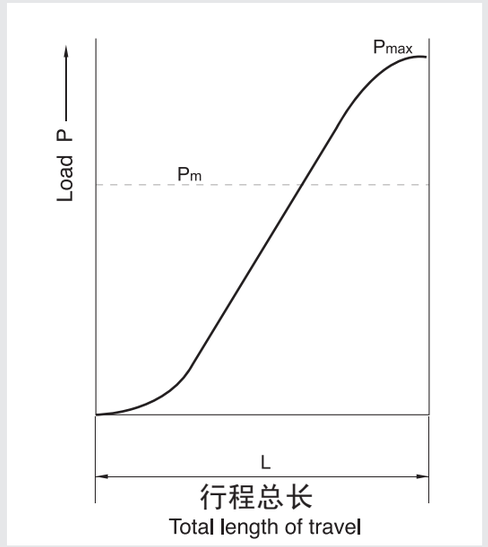
P_{min} : 最小载荷 Minimum load (N)

P_{max} : 最大载荷 Maximum load (N)

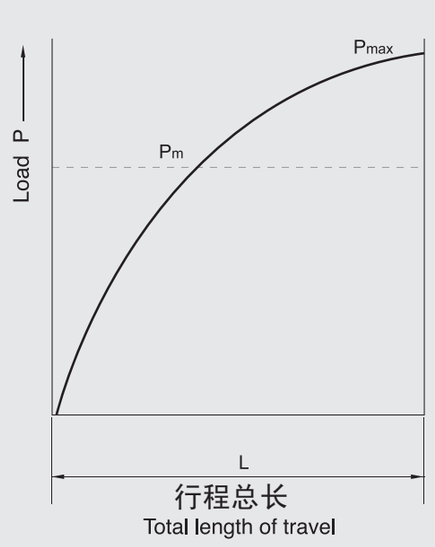


3) 正弦式变化载荷 Loads varying sinusoidally

a) $P_m \fallingdotseq 0.65_{max}$ ····· (3)



b) $P_m \fallingdotseq 0.75_{max}$ ····· (4)



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3-5. 计算额定行程寿命Life Calculation

直线导轨系统的额定行程寿命的计算公式如下所示。
The equation of nominal life for linear rail system is shown as below.

[计算额定行程寿命]
[Calculation of nominal life]

$$L = \left(\frac{f_H \cdot f_T \cdot f_C}{f_W} \cdot \frac{C}{P_C} \right)^3 X\ 50$$

- L (km) ：额定行程寿命 Nominal life
- P_C(N) ：计算载荷 Calculated load
- C (N) ：基本额定动载荷 Basic dynamic load rating
- f_H ：硬度系数 Hardness factor
- f_T ：温度系数 Temperature factor
- f_C ：接触系数 Contact factor
- f_W ：载荷系数 Load factor

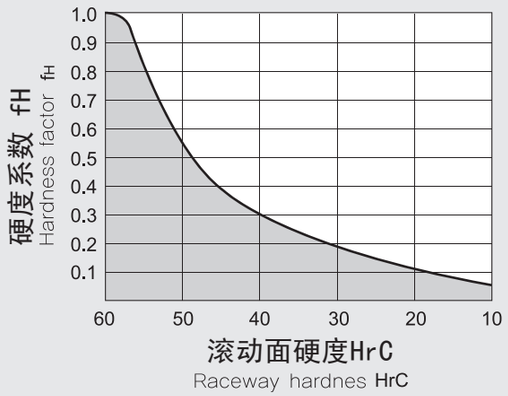
硬度系数（fH）Hardness factor (f_H)

为使直线导轨系统具有最佳的负载能力，导轨的硬度应为HRC 58~62。

To optimize the load capacity of a linear rail system, the hardness of the rail should be HRC 58~62.

※ 直线导轨系统的数值通常为1.0，因为直线导轨系统有足够的硬度。

※ The value for linear rail system is normally 1.0 since the linear rail system has sufficient hardness.



温度系数（fT）Temperature factor (f_T)

如果直线导轨系统的温度超过100℃，滑块和导轨的硬度就会降低，因此应考虑温度系数ft。

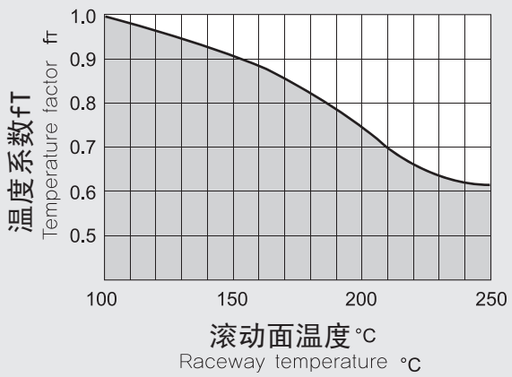
If the temperature of the linear rail system is over 100°C, The hardness of the block and rail will be reduced, and as the result, the temperature factor, ft should be taken into Account.

※当运行温度低于80℃时，直线导轨系统的数值通常为1.0。

※ The value for linear rail system is normally 1.0 when operation temperature is under 80°C.

※如果直线导轨的运行温度高于80℃，请联系我们。

※ Please contact us if you need linear rail system with over 80°C working condition.



接触系数（fC） Contact factor (f_C)

当两个或多个滑块紧密接触时，由于安装误差和公差的原因，很难获得均匀的载荷分布。应使用基本动载荷C乘以右表所示的接触系数fc。

When two or more blocks are used in close contact, it is hard to obtain a uniform load distribution because of mounting errors and tolerances. The basic dynamic load C should be multiplied by the contact factors fc shown here.

紧密接触的滑块数量 Number of blocks in close contact	接触系数fc Contact factor f_C
2	0.81
3	0.72
4	0.66
5	0.61
6或更多or more	0.6
正常条件 Normal condtion	1.0

载荷系数（fW）Load factor (f_W)

往复运动设备会产生振动。振动的影响难以精确计算。请参照右表补偿这些振动。

Reciprocating machines create vibrations. The effects of vibrations are difficult to calculate precisely. Refer to the following table to compensate for these vibrations.

振动与冲击 Vibration and Impact	速度（V） Velocity (V)	载荷系数fW Load factor fw
极轻 Very slight	极慢 Very low V≦0.25m/s	1 ~ 1.2
轻 Slight	慢 Low 0.25＜V≦1.0m/s	1.2 ~ 1.5
适中 Moderate	中等 Medium 1.0＜V≦2.0m/s	1.5 ~ 2.0
强 Strong	快 High V＜2.0m/s	2.0 ~ 3.5

[使用寿命计算]
[Life calculation]

当计算完额定行程寿命（L）后，如果每分钟的行程和往复循环次数恒定时，可利用下列公式计算直线导轨系统的使用寿命。

When the nominal life (L) is calculated. The life of linear rail system can be calculated by following equation, if the stroke and reciprocating cycles per minute are constant.

- L_h (h) ：额定行程寿命小时数 Hours of nominal life
- L (km) ：额定行程寿命 Nominal life
- ℓ_s (mm) ：行程 Stroke
- n_1 (min^{-1}) ：每分钟往复循环次数 Reciprocation cycles per minute

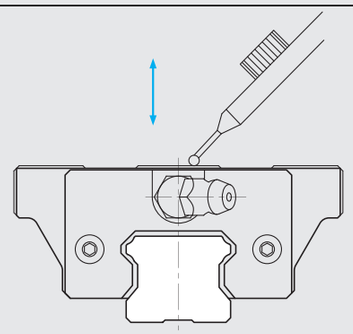
$$L_h = \frac{L \times 10^6}{2 \times \ell_s \times n_1 \times 60}$$

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4.刚度Rigidity

4-1. 径向间隙 Radial-Clearance

由于振动产生的滑块双向移动称为间隙。
The block side to side movement by vibration is called clearance.



间隙检查 Clearance checking
直线导轨系统安装完毕后，可上下移动滑块，然后检查数值变化。
After mounting the linear rail system, move the block up and down then check the change of value.

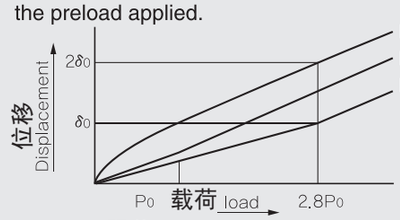
4-2.预载 Preload

预载影响刚度、内部载荷和间隙。必须根据施加载荷、可能出现的冲击和振动选择正确的预载。
Preload affects the rigidity, internal-load and clearance. Also, it is very important to select appropriate preload according to applied load, impact and vibration expected in the application.

预载 Preload	条件 Conditions	实例 Example
K3[重预载] K3 [Heavy preload]	□ 有刚度要求，存在振动和冲击时 □ Where rigidity is required, vibration and impact are present. □ 用于重型设备的工程机械 □ Engineered machinery for heavy equipment	● 加工中心 Machining center ● 数控车床 NC lathe ● 研磨机 Grinding machine ● 机床的垂直轴 Milling machine ● Vertical axis of machine tool
K2[轻预载] K2 [Light preload]	□ 出现悬伸轴或力矩时 □ Where overhung loads or moment occur □ 单轴运行 □ Single axis operation. □ 有精度要求的轻载荷 □ Light load that requires precision.	● 测量设备 Measuring equipment ● 电火花加工机床 Electric discharge machine ● 高速物料转运设备 High speed material handling equipment ● 数控钻床 NC drilling machine ● 工业机器人 Industrial robot ● 一般工业设备的Z轴 Z axis for general industrial equipment
K1[正常预载] K1 [Normal preload]	□ 当载荷方向恒定、冲击和振动较轻时 □ Where the load direction is constant, impact and vibration are light. □ 无精度要求 □ Precision is not required	● 焊机 Welding machine ● 装订机 Binding machine ● 自动包装机 Automatic wrapping machine ● 物料搬运设备 Material handling equipment

4-3. 刚度 Rigidity

在直线导轨系统上施加载荷时，滚珠、滑块和导轨会出现容许范围内的弹性变形。这种位移比就是我们常说的刚度。
When the load is applied to Linear Rail Systems, the balls, blocks and rails experience the elastic deformation within permissible range. The ratio of displacement is known as the rigidity.
刚度会随预载的增加而增大。The rigidity increases as the preload increases.
在四向载荷相等的类型中，只有载荷增加到施加预载的2. 8倍时预载才可用。
In case of four way equal load type, the preload is available until the load increases to some 2.8 times the preload applied.



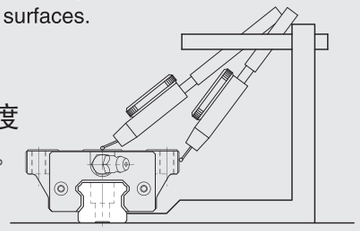
$$K = \frac{P}{\delta}$$

K (N/μm) : 刚度 Rigidity
δ (μm) : 位移 Displacement
P (N) : 计算载荷 Calculated load

Po：预载 Po: Preload

5. 精度 Accuracy

直线导轨系统的精度通常由运行平行度或滑块和导轨安装面之间的垂直与水平振动决定。
Accuracy of linear rail system is generally defined by the running parallelism or the vertical and horizontal variations between the block and the rail mounting surfaces.



5-1、运行平行度 Running parallelism

它是指导轨安装完之后，滑块沿导轨的全部长度移动时，滑块与导轨基准面之间的平行度公差。
It is tolerance of parallelism between reference of block and rail when the rail is mounted and block is moving in the whole length of rail.

5-2、高度差 Difference in Height

相同导轨上的滑块之间的高度差。
Difference in height between blocks on the same rail.

5-3. 宽度差 Difference in width

相同导轨上的导轨与滑块之间的宽度差。
Difference in width between rail and blocks on the same rail

5-4.精度水平Accuracy level

精度水平分为三类：N、H和P。
Accuracy levels are divided into three type – **N, H** and **P**.
※参见尺寸页面了解每种精度。
※See the dimension pages for each accuracy.

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6.系统设计Design of system

安装方法、安装面公差和导轨安装顺序都影响设备的精度。因此我们建议您考虑以下条件。

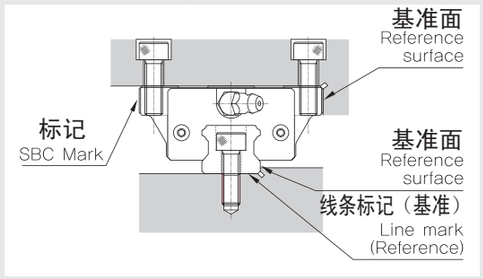
Mounting method, tolerance of the mounting sufraces, and order in which the rails are mounted all affect the accuracy of machine,. Therefore we recommend considering below conditions.

6-1.标记基准面 Identifying reference surface

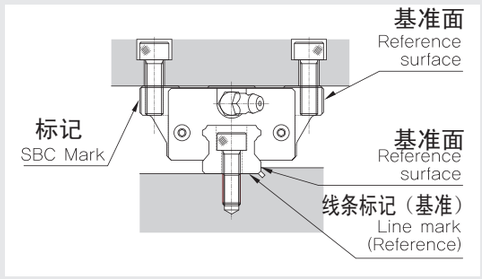
滑块的无标记边缘和导轨的线条边缘可确定基准面。请注意采用下列方法，以便在设计时确定这些基准面的位置。

The unmarked edge of the block and the lined edge of the rail define the reference surfaces. Please note the methods below for locating these surfaces in your design.

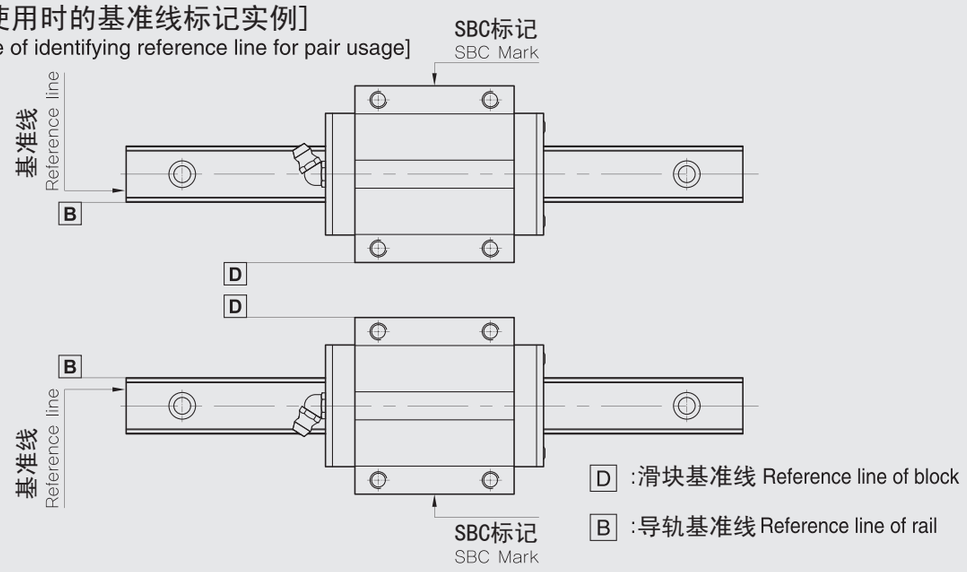
[主直线导轨系统]
[Master linear rail system]



[[子直线导轨系统]
[Subsidiary linear rail system]



[成对使用时的基准线标记实例]
[Example of identifying reference line for pair usage]

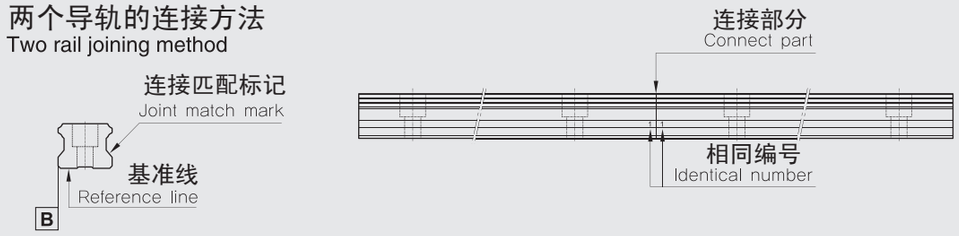


[导轨接头标记 Rail joint marking]

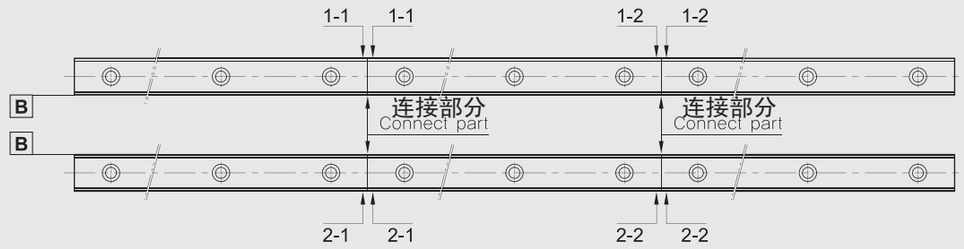
对于行程超长的应用，就需要使用对接接头连接导轨。这些匹配的接头可确保连续平稳运动，并且在出厂时已编号。在安装时应确保接头上的编号匹配。当安装双导轨系统时，两个编号中的前一个可识别导轨。

For extremely long travel applications it may be necessary to join the rails via a butt joint. These joint are matched for continuous smooth motion at the factory and numbered. When installing the segments insure that the numbers at the joints match. In the case of a double rail system the first of the two numbers identifies the rail.

两个导轨的连接方法
Two rail joining method



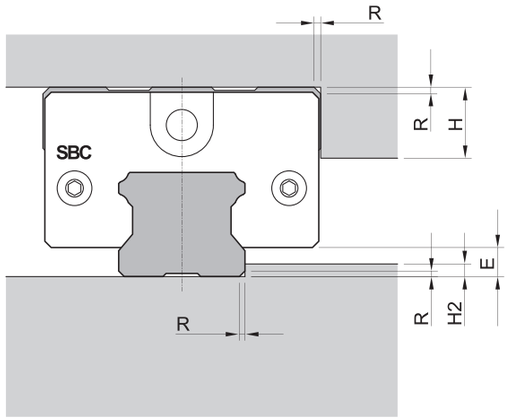
双轴应用与多导轨连接方法
2 axis application and multiple rail joining method



6-2. 肩高与圆角半径R Shoulder height and fillet radius R

在工作台和底座上安装轴承和导轨时，必须考虑圆角半径、倒角尺寸和肩高。
When the bearing and rail are installed on the table and base, the fillet radius, chamfer size and shoulder height must be considered.

※参见每页内容了解肩高和圆角半径R。
※ See the each pages for shoulder height and fillet radius R.

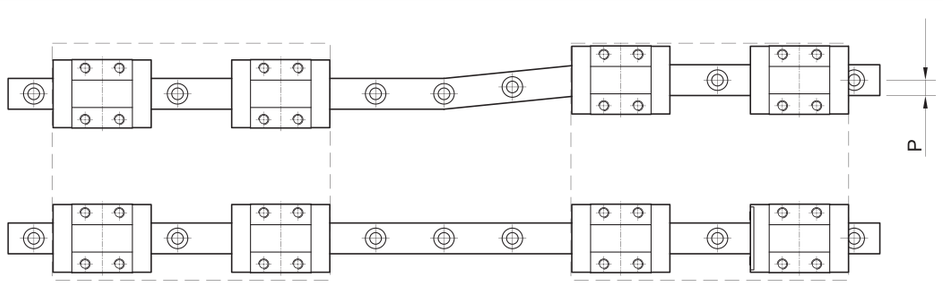


6-3. 安装面的容许公差 Permissible tolerance of mounting surface

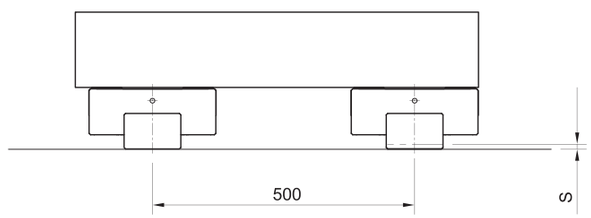
安装误差会导致运动时产生滚动阻力。由于SBC直线导轨系统具有自动调节功能，所以只要容许公差不超过产品目录中的公差表范围，滚动阻力或轴承就不会受影响。
Mounting errors can cause rolling resistance to motion. Due to the self adjusting feature of the SBC linear rail system, rolling resistance or bearing will not be affected as long as the permissible tolerance is observed as per the table shown in the catalogue.

※参见每页内容了解安装面的容许公差。
※ See the each page for permissible tolerance of mounting surface.

[平行度容许公差（P）]
[Permissible tolerance (P) of parallelism]



[导轨安装面高度变化的容许公差（S）]
[Permissible tolerance (S) of rail mounting surface height variation]



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6-4. 安装直线导轨系统 Mounting linear rail system

[滑块与导轨的固定方法 Securing Method for Blocks and Rails]

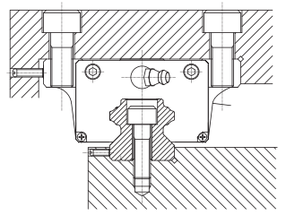
通常，用户可使用螺栓将轴承滑块和导轨安装到设备中。当施加水平载荷时、冲击或振动时，建议将导轨水平固定在基准面上。

Normally, both the bearing block and rail are mounted to the structure with bolts. When a horizontal load is applied, shock, or vibration, it is recommended that the rail be clamped horizontally against the reference surface.

(1) 螺钉安装 Cap screw mounting

当空间有限时，可使用小螺钉安装。螺钉数量可根据需要调整。

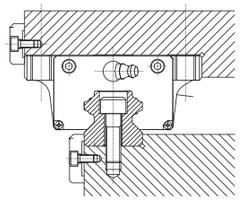
Small bolts are used when space is limited. The number of bolts can be adjusted as necessary.



(2)水平固定安装 Horizontal clamp mounting

该方法适用于存在冲击和振动的运行条件。

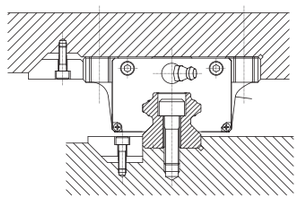
This method provides an easy solution to shock and vibration applications.



(3) 锥形楔块 Tapered Gib

该方法是将导轨和滑块固定在基准面的一种最安全的方法。

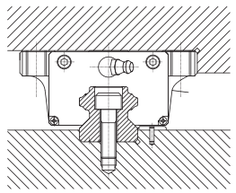
This method offers the most secure means for locating the rail and block against the reference surface.



(4) 固定销 Dowel Pin

当作用力较小并且需要降低成本时，可使用固定销固定导轨。

Where the forces are lower and the costs more critical, dowel pins can be used to fix the rail.

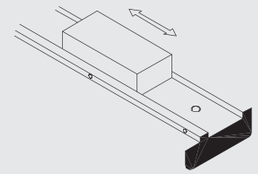


[导轨安装步骤 Rail Mounting procedure]

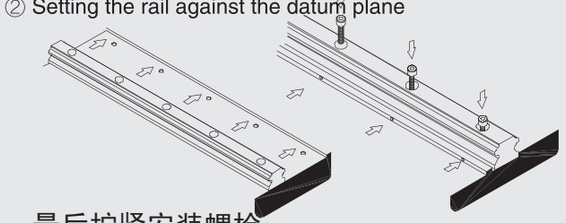
清洁并干燥安装面。
❶ Clean and dry the mounting surface.
使用低粘度主轴油涂抹每个表面，再将导轨安放到表面上，然后暂时轻轻拧紧安装螺栓。
❷ Coat each surface with low viscosity spindle oil, then place the rail on the surface and then lightly tighten the mounting bolts temporarily.
将滑架板小心放到滑块上，然后暂时拧紧安装螺栓。
❸ Place the carriage plate on the blocks carefully and tighten the mounting bolts temporarily.
利用选择的固定方法将主滑块固定在基准面上以固定滑架板，然后使用转矩扳手拧紧安装螺栓。
❹ Position the carriage plate by tightening the master block against the reference surface using the selected securing method and tighten the mounting bolts with a torque wrench.

※ 按照上述顺序安装子滑块。
※ Follow the above order to mount subsidiary blocks.

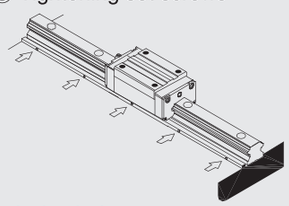
检查安装面
① Checking the mounting



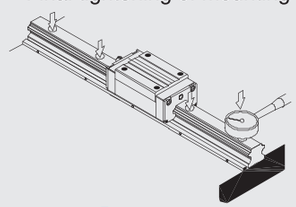
将轨道安放在基准面上
② Setting the rail against the datum plane



拧紧定位螺钉
③ Tightening set screws



最后拧紧安装螺栓
④ Final tightening of mounting bolts

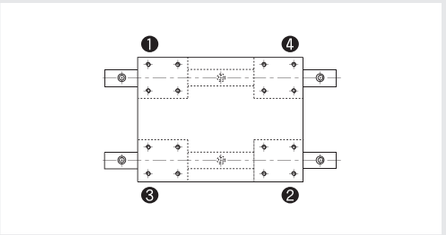


[滑块安装步骤 Block Mounting procedure]

将基准导轨拧紧就位，再使用转矩扳手拧紧安装螺栓，转动几次后达到所需的扭矩。
❶ Clamp the reference rail in place and tighten the mounting bolts with a torque wrench, making several passes to reach the desired torque

将装有轴承的工作台小心放到导轨上，再使用转矩扳手拧紧非基准滑块。
❷ Carefully position the table with bearings onto the rails and tighten the non-reference blocks with a torque wrench.

从一端开始沿导轨移动工作台，在转动过程中缓慢拧紧非基准导轨，最后一次转动时使用转矩扳手拧紧。切勿过度拧紧。
❸ Starting at one end ,move the table along the rail and tighten the non-reference rail slowly during several passes with a final pass using the torque wrench. Do not over tighten



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[螺栓安装扭矩 Bolt mounting torque]

在安装导轨时建议采用下列螺栓安装扭矩。
Below bolt mounting torque is recommended for mounting the rail.

Unit : N.cm

螺栓 Bolt	安装扭矩Mounting torque		
	钢制 Steel	铸铁制 Cast iron	铝制 Aluminum
M2	58.8	39.2	29.4
M2.3	78.4	53.9	39.2
M2.6	118	78.4	58.8
M3	196	127	98
M4	412	274	206
M5	882	588	441
M6	1370	921	686
M8	3040	2010	1470
M10	6760	4510	3330
M12	11800	7840	5880
M14	15700	10500	7840
M16	19600	13100	9800
M20	38200	25500	19100
M22	51900	34800	26000
M24	65700	44100	32800
M30	130000	87200	65200

7. 润滑Lubrication

直线导轨系统的润滑对其性能至关重要。
Lubrication for linear rail system is a key part of its performance.

减少每个移动部件的摩擦和磨损。
- Reduce friction and wearing for each moving part.

为直线导轨系统降温。
- Eliminate the heat on linear rail system.

防止直线导轨系统的内部与外部腐蚀。
- Prevent corrosion on inside and outside of linear rail system.

防尘。
- Dust-prevention.

7-1. 直线导轨系统的润滑要求 Lubrication requirements for linear rail system

形成厚油膜
- Form a strong oil film

热稳定性高
- Have high thermal stability

低摩擦
- Low-friction

高度防水
- High water resistance

润滑油必须粘度高，润滑脂必须具有一致的重复涂抹浓度
- Oil must have high-viscosity and grease must have consistency again repeated agitation of grease

无腐蚀
- Non-corrosive

7-2. 润滑对比 Comparison of lubrication

下表显示了用润滑油和润滑脂对直线导轨系统润滑时的特性对比。
A comparison of the application features for oil and grease used in linear rail system is shown in the table below.

项目 Item	润滑脂 Grease	润滑油 Oil
旋转 Rotation	低、中间 Low, intermediate	高 High
密封 Seal	简单 Simple	小心 Cautious
润滑变化 Lubrication change	复杂 Complicated	简单 Simple
使用寿命 Life	短 Short	长 Long
热辐射 Thermal radiation	差 Bad	好 Good
摩擦扭矩 Friction torque	大 Large	小 Less
性能 Performance	好 Good	优 Excellent

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(1) 润滑脂润滑方法 How to grease

采用油脂枪：通过注油口将润滑脂注入直线导轨系统。
- **With grease gun :** The grease is fed through the grease fitting on linear rail system.

采用油脂泵：定期使用自动油脂泵注入润滑脂。
- **With pump :** The grease is fed periodically by automation pump.

(2) 润滑油润滑方法How to feed oil

用刷子涂抹、喷射或泵注。
- Oil-brushed on, sprayed or pumped.

7-3. 润滑间隔 Lubricants interval

润滑间隔取决于环境和设备的运行条件。建议采用下表中的润滑间隔。
切勿混合润滑油和润滑脂。
Lubricants intervals vary according to the environment and working condition of machine. Therefore, below lubricant intervals are recommended. Do not mix oil and grease systems.

项目 **Item**	检查时间 **Checking time**	润滑间隔 **Lubricant interval**	运行条件与结果 **Working condition and outcome**
润滑脂 Grease	个月 3 ~ 6 months	6个月~1年 6 months ~ 1 year	正常运行条件 Normal working condition
		3000km	个月 3000km/6 months
	周 1 week	根据检查情况 According to checking	用油量和污染情况 Volume and contamination of oil
润滑油 Oil	每天 Everyday	随时 Any time	用油量 Volume of oil

7-4. 润滑油等级 Class of oil

润滑剂 **Lubricant**	等级 **Class**
润滑油 Oil	冷却油、透平油ISOVG32 ~ 68 Coolant oil, turbine oil ISOVG32 ~ 68

7-5. 润滑剂的选择与类别 Classification and selection of lubrication

必须先考虑振动、无尘室、真空和运行条件后再选择直线导轨系统的润滑剂。
Lubricant for linear rail system must be selected after considering vibration, clean room, vacuum and working condition.

SBC提供两种标准润滑脂。
SBC supplies two kinds of grease as standards.

项目 **Item**	应用 **Application**	品牌 **Brand**
正常运行条件 Normal working condition	多用途工业应用 Multipurpose industrial application	Shell Alvania EP(LF)0 [韩国壳牌] Shell Alvania EP(LF)0 [Korea Shell]
特殊运行条件 Special working condition	无尘室 Clean room	SNG 5050 [韩国NTG] SNG 5050 [NTG Korea]
	振动 Vibration	
	宽温度 Wide temperature	

如需特殊润滑剂或材料安全数据表，请联系SBC公司。
* Contact SBC for special lubes or MSDS sheets

[正常运行条件：多用途工业应用]
[Normal working condition: Multipurpose industrial application]

概述 [1] General

名称： Shell Alvania EP(LF)0
- **Name :** Shell Alvania EP(LF)0

制造商： 韩国壳牌
- **Company :** Korea Shell

外观： 亮棕色，常温下呈半固体状
- **Appearance :** Bright brown color, semi-solid in normal temperature

特性 [2] Special feature

耐高负载
- High load resistance

抗腐蚀
- Anti-corrosive

流动性高
- High liquidity

机械稳定性突出
- High mechanical stability

代表特征 [3] Representative feature

稠度增强剂： 锂
- **Consistency enhancer :** Lithium

基础油： 矿物油
- **Base oil :** Mineral oil

工作温度： -30°C ~ 100°C
- **Working temperature :** -30°C ~ 100°C

测试项目 Test item	代表值 Representative value	测试方法 Test method
稠度 [25°C, 60 次] Consistency [25°C, 60 times]	0	NLGI *
滴点 Dropping point	180°C	ASTM D 566
铜板腐蚀[方法B，100° C，24小时] Copper plate corrosion [Method B,100°C, 24h]	1 B	ASTM D 4048
蒸发[99° C，22小时] Evaporation [99°C, 22h]	0.40 %	ASTM D 972
氧化稳定性[99° C，100小时] Stability of oxidation [99°C, 100h]	0.40 kgf/cm²	ASTM D 942
混合稳定性[100,000次循环] Mixing stability [100,000cycles]	393	ASTM D 217

*美国润滑脂协会（NLGI）
* NLGI :National Lubricating Grease Institute

稠度测试方法 Consistency test method	KS	NLGI
	355 ~ 385	0

[特殊运行条件：宽温度和低积尘性]
[Special working condition : Wide-temperature and low dust accumulating]

概述 [1] General

名称： SNG5050
- **Name :** SNG5050

制造商： 韩国壳牌
- **Company :** NTG Korea

外观： 常温下呈黄油状
- **Appearance :** Butter in normal temperature

特性 [2] Special feature

出色的氧化稳定性
- Excellent stability of oxidation

使用寿命长
- Long life grease

低积尘性和一流的耐化学性
- Low dust accumulating and excellent chemical-resistance

宽温度范围
- Wide temperature range

代表特征 [3] Representative feature

稠度增强剂： 尿素
- **Consistency :** Urea

基础油： 合成油
- **Base oil :** Synthetic oil

工作条件： -40°C ~ 200°C
- **Working temperature :** -40°C ~ 200°C

测试项目 Test item		代表值 Representative value	测试方法 Test method
稠度 [25° C，60次] Consistency [25°C, 60 times]		3	NLGI *
滴点 Dropping point		280°C	JIS K 2220 5.4
蒸发（22小时）质量% Evaporation (22h) mass %	99°C	0.11%	JIS K 2220 5.6
	150°C	0.57%	JIS K 2220 5.6
油分离率（24小时）质量% Oil separation rate (24h) mass %	150°C	0.5%	JIS K 2220 5.7
油膜蒸发（22小时）质量% Film evaporation (24h) mass %	150°C	5.54%	-
	180°C	16.44%	-
氧化稳定性[99° C，100小时]质量% Stability of oxidation [99°C, 100h] mass %		0.015%	JIS K 2220 5.8
混合稳定性[100000次循环] Mixing stability [100,000cycles]		通过 Pass	ASTM D 1743
耐磨损性(1200rpm，392N，室温1小时) Wear resistance (1200rpm, 392N, room temperature 1h)		0.57	ASTM D 2266

*美国润滑脂协会（NLGI）
* NLGI : National Lubricating Grease Institute

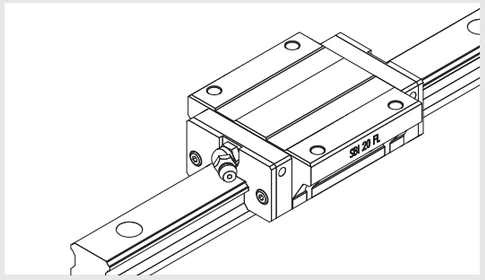
稠度测试方法 Consistency test method	KS	NLGI
	220 ~ 250	3

7-6. 润滑脂注油部件 Grease fitting

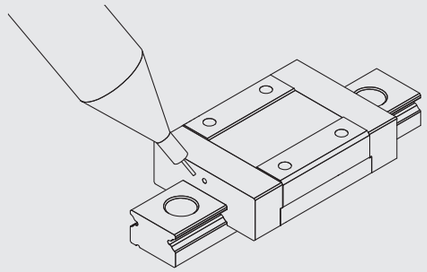
根据具体设计从下列选项中选择适用的注油部件。
Select the appropriate grease fitting from below options in accordance with design.

[标准注油部件Standard grease fitting]

前部注油部件（SBM、SBMW除外）是直线导轨系统的标准注油部件。
Front grease fitting (except SBM, SBMW) for linear rail system is standard grease fitting.



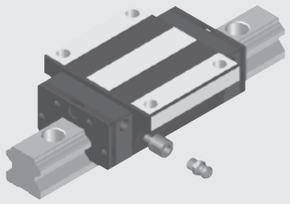
（SBG、SBI前部注油部件）
(SBG, SBI front grease fitting)



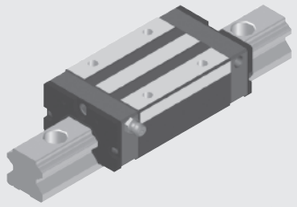
（SBM、SBMW前部注油部件）
(SBM, SBMW front grease fitting)

[侧面注油部件 Side grease fitting]

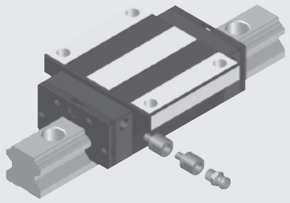
如果由于注油部件的前部空间所限难以注油，我们可提供侧面注油部件。
（侧面注油部件不适用于SBM, 、SBMW。）
When greasing is difficult because of limited space in front of the grease nipple, the side grease fitting can be supplied. (*Side grease fitting is not available for SBM, SBMW.)



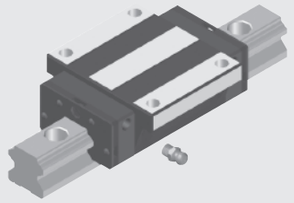
（SBG、SBI 15~25 FL侧面注油部件）
(SBG, SBI 15~25 FL side grease fitting)



（SBG、SBI SL侧面注油部件）
(SBG, SBI SL side grease fitting)



（SBG 30~35 FL侧面注油部件）
（SBI 30~45 FL侧面注油部件）
(SBG 30~35 FL side grease fitting)
(SBI 30~45 FL side grease fitting)



（SBG 45~65 FL侧面注油部件）
（SBI 55~65 FL侧面注油部件）
(SBG 45~65 FL side grease fitting)
(SBI 55~65 FL side grease fitting)

8. 安全设计 Safety design

为确保达到所需的使用寿命，必须根据直线导轨系统的运行条件进行防尘、防锈处理和重新润滑。
Dust prevention, rust prevention and re-lubrication according to working conditions of the linear rail system are necessary for required life time.

8-1. 防锈 Anti-rust

我们通过3种表面防锈和外观处理方式。
3 types of surface treatment are available for anti-rust and appearance.

[镀铬 Chrome plating]

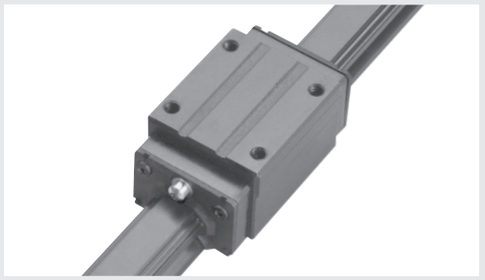
它的涂层厚度超过750HV，因此具有极高的防锈性能和耐磨损性。
It achieves high rust resistance and wear resistance with the coating film of over 750HV.

[低温镀黑铬处理 Raydent-treatment]

我们还提供低温镀黑铬处理以满足耐腐蚀性的要求。
它适用于表面耐腐蚀性处理。
For corrosion resistance, raydent surface treatment is available.
This treatment is suitable for corrosion resistance.

[氟碳化合物低温镀黑铬处理 Fluorocarbon raydent treatment]

在低温镀黑铬的基础上增加氟碳化合物涂层适用于高度耐腐蚀环境（水流或液体工作条件）
Fluorocarbon coating on raydent-treatment is suitable where high corrosion resistance is required (water or salty water working condition).



（低温镀黑铬）
(Raydent)

[表面处理注意事项 Caution for surface treatment]

注意，导轨孔不进行表面处理。
❶ Be aware that the rail hole may not surface treated.
如果选择了需要表面处理的直线导轨系统，请设置更高的安全系数。
❷ Set the higher safety factor in case surface treated linear rail system is selected.
除上述表面处理方法外，其他处理方法可能导致性能问题。
❸ Except above surface treatments, the other plating may cause performance problems.
欢迎联系SBC公司以了解其他表面处理信息。
❹ Contact SBC for other information on surface treatments.

直线导轨系统
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8-2. 防尘 Dust protection

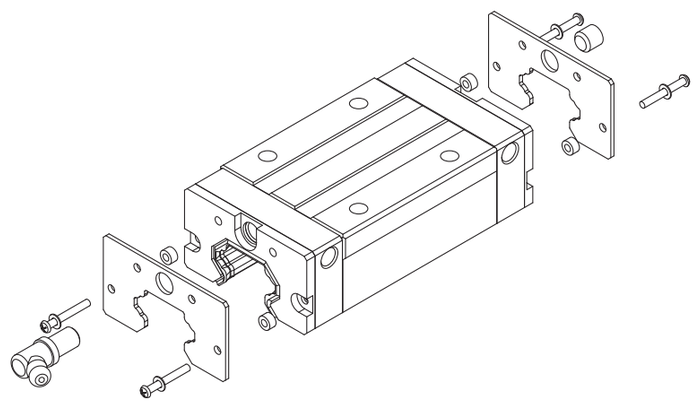
尺寸页面显示了每种密封的尺寸。
The dimensions for each seal is shown on dimension page.

[密封选项 Seal options]

根据运行条件选择适用的密封。
Select the appropriate seal options according to working conditions.

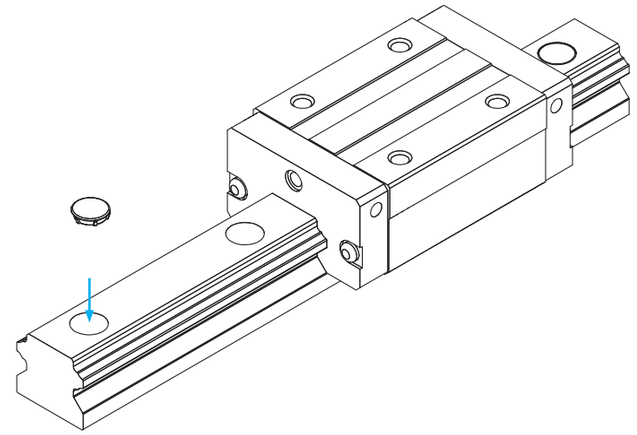
项目 Item	符号 Symbol	应用环境 Application
双密封盖 End seal	无符号（标准） No symbol (Standard)	正常条件 Normal condition
双密封盖+双密封盖 End seal + end seal	DD	积尘条件 Dust condition
双密封盖+刮片 End seal + scraper	ZZ	焊接飞溅 Welding spatter
双密封盖+双密封盖+刮片 End seal + end seal + scraper	KK	灰尘和碎屑 Dust and chips

＊ 底部密封不适用于SBI、SBG、SBS15
* Bottom seal is not available for SBI, SBG, SBS15



[RC型孔帽：导轨孔盖帽 **RC cap:** rail hole cap]

污染物会侵入导轨的螺栓孔并污染轴承内部。您可以使用硬化橡胶制成的孔帽封住螺栓孔。RC型孔帽与导轨一起提供。
Contaminants invade into the bolt holes of the rail and pollute the inside of the bearing. You can use hole caps made from hardened rubber to fill the holes. RC caps are provided with the rails.



◁ RC型孔帽安装方法 **RC cap mounting method** ▷

用螺栓将轨道安装在底板上。
❶ Bolt the rail on the plate.

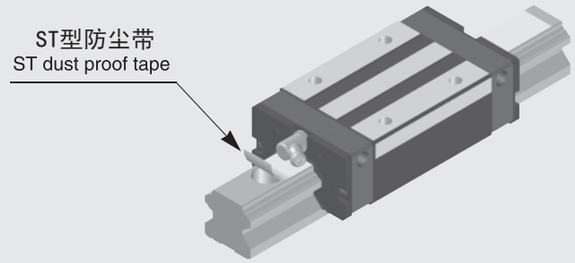
将RC型孔帽放到导轨安装孔上，将较大的钢板放在孔帽上，然后用锤子轻敲。
❷ Put the RC cap on the rail mounting hole and place the bigger steel plate on the cap then tap it with hammer.

检查RC型孔帽，确保其已正确就位。
❸ Check the RC cap to make sure it is properly seated.

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[ST型防尘带 ST dustproof tape]

ST型不锈钢防尘带可显著提升导轨表面的密封性，而且它能与导轨滑块密封连用。传统的塑料塞不会如此提高密封性能。
Stainless steel ST dustproof tape greatly improves rail face sealing and works in conjunction with guide block seals. Conventional plastic plugs do not offer the same improved sealing performance.



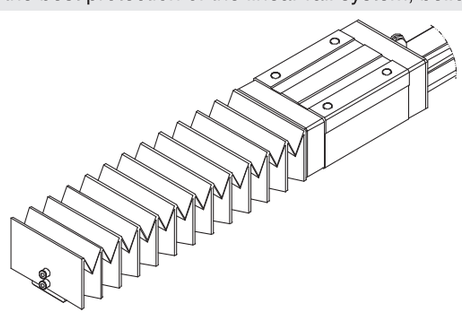
◁ 安装ST型防尘带 Installation of ST tape ▷

将导轨安装到底座上后，应清洁导轨表面并去除润滑油。
❶ After assembling a rail to the bed, clean the surface of the rail and remove any oil.
在导轨每一端的2或3㎜范围内，沿导轨长度缓慢粘贴ST型防尘带。
❷ Attach the ST tape slowly over the rail length to within 2 or 3 mm from each end of the rail.
粘贴完毕后，用干布沿导轨长度轻压3或4次以释放内部的环氧树脂胶。
防尘带粘贴完4-6小时后才会开始粘合。
❸ After attachment to the rail, apply pressure with dry cloth 3 or 4 times along the length of the rail to release encapsulated epoxy. Tape should be applied 4 to 6 hours prior to use to allow initial bonding.

※粘贴时必须佩戴防护手套，以免防尘带的锋利边缘割伤手指。
※ It is strongly recommended to wear safety gloves, the edge of this tape is sharp and can cut as you attach it to the rail.

[防尘罩 Bellows]

直线导轨系统的最佳防尘方式是采用防尘罩。
For the best protection of the linear rail system, bellows should be used.



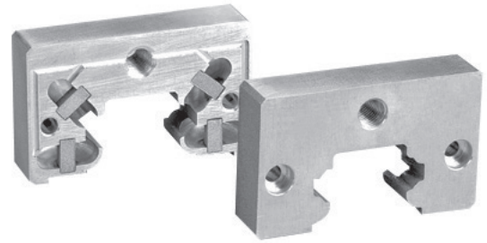
参考：SBI型：SH-A
SBG型：SH
● Reference : SBI type : SH-A
SBG type : SH

8-3.高温设计 High temperature design

[HT型端盖 HT end-plate]

如果运行温度高于80° C，SBC可提供铝制高温端盖。
If working temperature is more than 80°C, SBC supply the high temperature end-plate which is made of aluminum.

● 建议工作温度：-20 ~ 180°C
Recommended working temperature : -20 ~ 180°C



※ 对于高温应用环境，我们可将所有塑料组件换成钢制或铝制组件。
※ For high temperature applications we can replace all plastic components with steel or aluminum.

直线导轨系统
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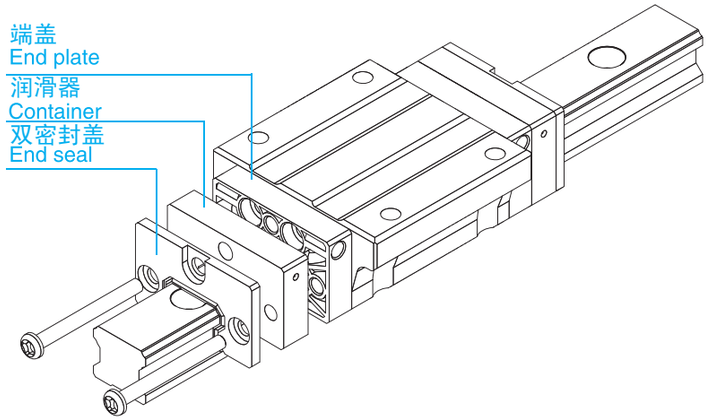
8-4. 高级防尘盖与自动润滑器High dust-proof and self-lubricant container

为防止细微异物进入直线导轨系统，并解决注油部件难以应用的问题，
SBC公司提供了高级防尘盖、（DF）密封与自动润滑器（MF）。

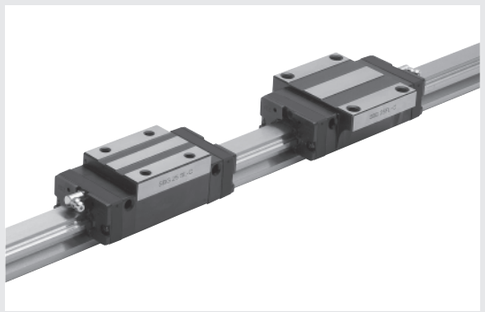
For protecting the linear rail system from fine foreign matter and where the grease feeding is not easy, SBC created the high dust-proof, (DF) seal and self-lubricant container (MF).

- 根据密封类型确定的功能和类别
  Function and classification in accordance with seal type

DF：可防止细微异物侵入的防尘功能
DF : Dust protection for fine foreign matter
MF：可延长维护间隔的自动润滑功能
MF : Self lubricating for long maintenance intervals

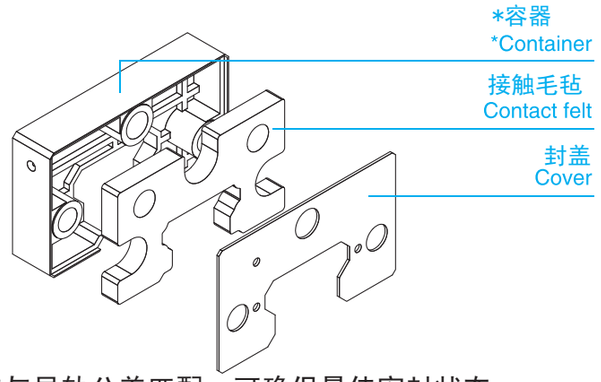




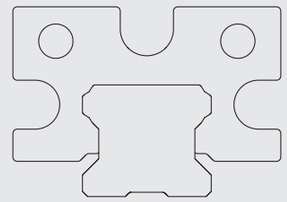


[高级防尘盖：DF密封 High dust-proof seal : DF seal]

DF容器内的高密度毛毡可利用薄油膜擦拭滚动面。另外还能增加密封或刮板以满足高度污染环境的应用需求。
High-density felt built in DF container wipes the raceway tracking profile with a thin film of oil. An additional seal or scraper may be added for highly contaminated applications.



*容器
* Container
– 其接触表面的公差与导轨公差匹配，可确保最佳密封状态。
- Its contact surfaces are tolerance match to the guiderail to ensure perfect sealing.



（可完全接触导轨以擦除灰尘）
(fully contat the rail and wipe the dust)

※小心
※ Caution

如果您要在水流或无尘室运行条件下使用DF密封，请联系SBC公司。
If you would like to use DF seal in watery or clean-room working condition, please contact SBC.

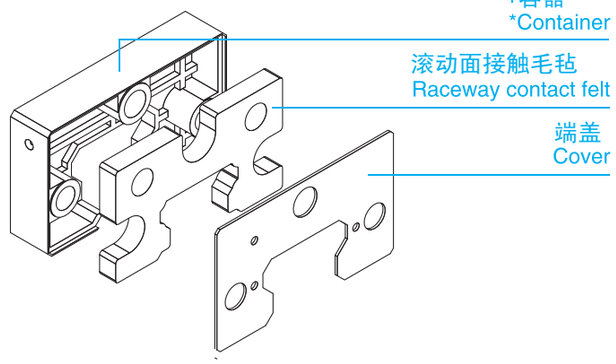
直线导轨系统
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[自动润滑：MF润滑器 Self lubricant : MF container]

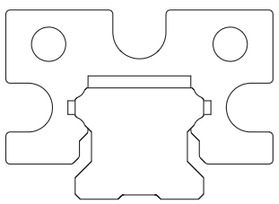
MF（自动润滑）器含有浸渍润滑脂的毛毡，它能连续在滚动面上注入润滑脂。每个小型密封圈都能确保对整个表面进行润滑，而且可保证轴承的长期免维护运行。

MF (Self lubricanting) contains grease impregnated felt which feeds the grease on the raceway continuously. Each compact seal kit will guarantee total surface lubrication and long maintenance free bearing life.



＊ 容器
* Container

– 其接触表面的公差与导轨公差匹配，可确保最佳密封状态。
- Its contact surfaces are tolerance match to the guiderail to ensure perfect sealing.



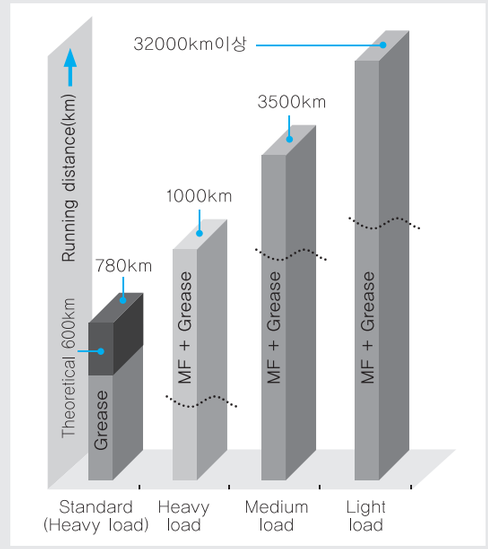
（擦拭滚动面，将润滑脂涂在滚动面上）
(Wipe the raceway and grease is coating on the raceway)

8-5. MF润滑器使用寿命测试 MF container Lifetime test

[性能测试 Performance test]

● SBG20SL-1-K1-1500-N

条件 Condition	重 Heavy	中 Medium	轻 Light
载荷 Load	4.9kN	2.5kN	1.0kN
速度 Velocity	20m/min		
理论使用寿命 Theoretical Lifetime	600km	1500km	-



[注油部件 Grease feeding]

使用注射器通过滑块内孔可为MF润滑器重新加入润滑脂。
The MF container may be re-charged by adding grease to hole inside of block with a syringe.

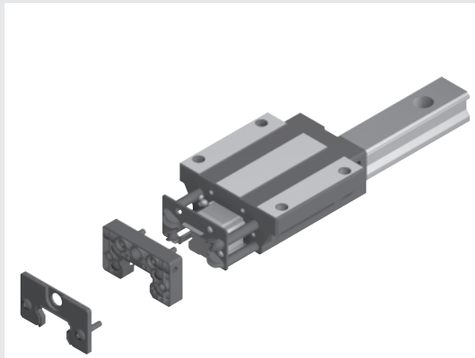
※小心
※ Caution

如果需要在特殊运行条件下使用MF，请联系SBC公司。
If MF container is required to use in special working condition like clean room, please contact SBC.

直线导轨系统的类型
The Types of Linear Rail System

SBI高负载型 SBI high-load type

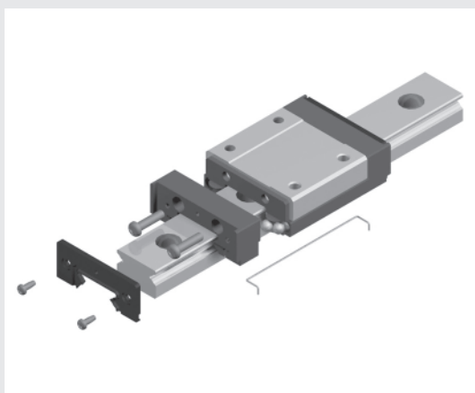
除具备SBG型的所有优势外，SBI型还提高了导轨系统的负载能力和运行速度。
With all advantages of our SBG type, SBI improves load capacity, and increases speed capabilities for the rail system.



SBI型 SBI type
-类型 -Type: SBI15~65

SBM微型 SBM miniature

尺寸极小的微型直线导轨系统也具有高负载能力。
Miniature linear rail system with compact size also achieve high-load.



SBM（标准微型）SBM (Standard miniature)
-类型 -Type: SBM09~15

SBML（高载荷微型）SBML (High-load miniature)
-类型 -Type : SBML09~15

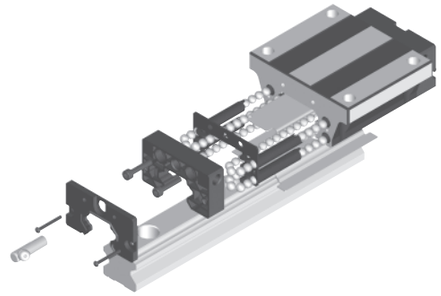
SBMW（加宽式微型）SBMW (Wide type miniature)
-类型 -Type: SBMW09~15

直线导轨系统
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直线导轨系统的类型
The Types of Linear Rail System

SBG标准型 SBG standard

SBC标准直线导轨系统
Standard SBC linear rail system.

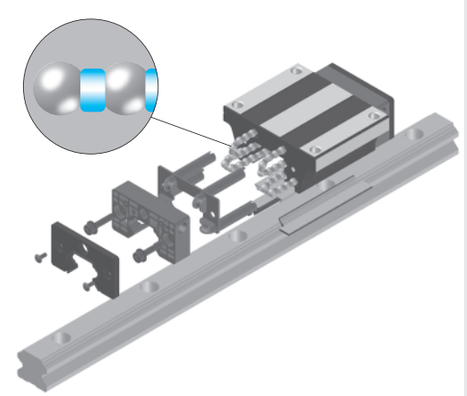


SBG型 SBG type
类型 Type: SBG 15~65

SBS型 SBS type
-组装高度低于SBG型
-类型：SBS 15~45
-Assembly height is lower than SBG type
-Type : SBS 15~45

SPG滚珠间隔器 SPG spacer

低噪型系统内装有塑料滚珠间隔器。
Low noise type in which the plastic spacer are inserted in between balls.



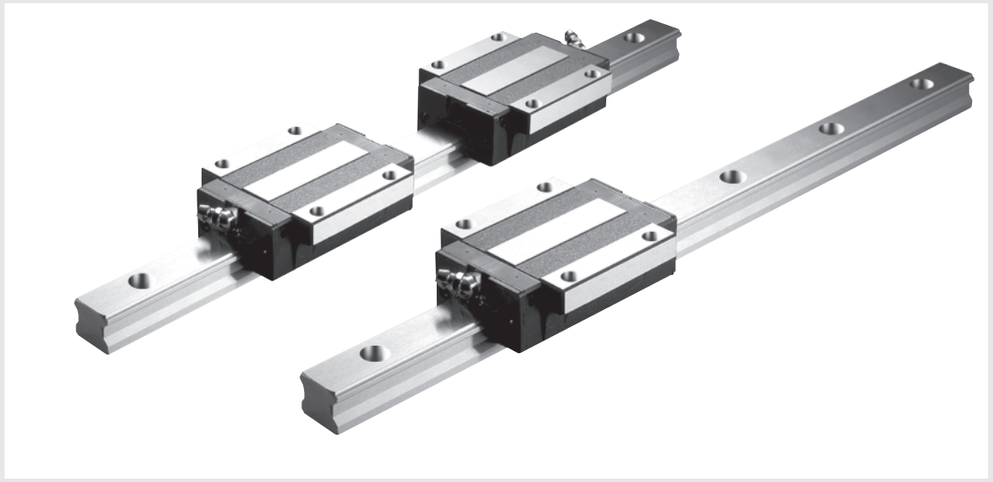
低噪型（间隔器类型）
Low noise (Spacer type)
在滚珠之间插入间隔器
Spacer are inserted in between balls

SPG（=与SBG可尺寸互换）
SPG (=SBG dimensionally interchangeable)
类型 Type : SPG 20~35

SPS（=与SBS可尺寸互换）
SPS (=SBS dimensionally interchangeable)
类型 -Type: SPS 20~35

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System



圆弧形沟槽
Circular arc groove

两点接触式圆弧槽结构。它能保持自动对准功能和平稳滚动性能。
Two point contact structure of circular arc groove. It keeps the function of self-aligning and smooth rolling performance.

45° 接触角
45° angle of contact

四列圆弧槽接触滚珠呈45度角可在所有方向上提供一致的负载能力。
Four rows of circular arc groove contact balls at an angle of 45 degrees provides the same capacity in all directions.

DF结构
DF structure

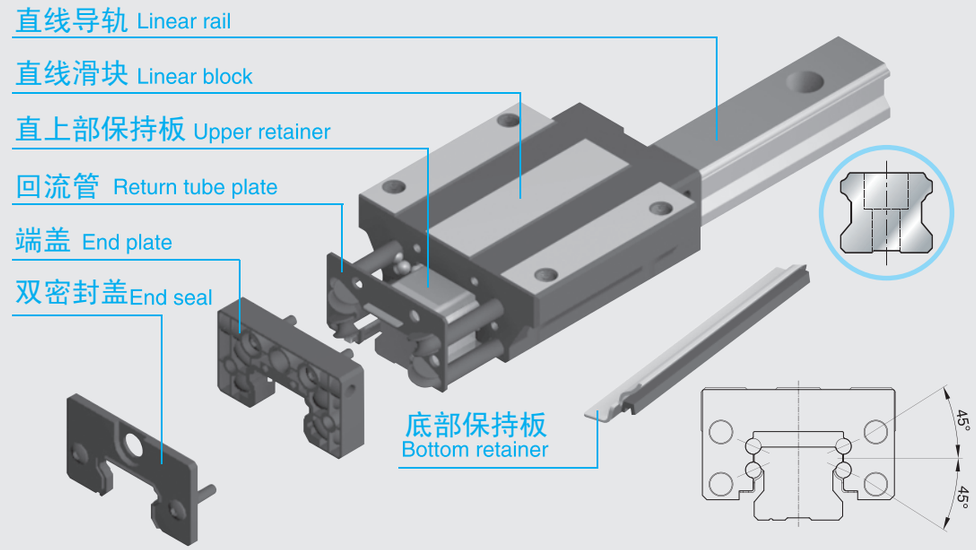
低噪音和高刚度
Low noise and High rigidity

经优化处理的滚珠循环结构与设计可确保低噪音和高刚度。
Optimized ball recirculation structure and design provides low noise and high-rigidity.

尺寸相同
The same dimension

高度、宽度和安装孔尺寸与SBG系列的完全相同，只是滑块长度略有不同。
The dimension of height, width and mounting holes are the same as SBG series, with only a slight variation in block length.

结构特性 The feature of structure



双密封盖 新型双密封结构可提高防尘性和防颗粒污染性。
End seal New double lip structure which improves resistance to dust and particle contamination.

保持板 滚珠保持板以卡装方式固定在滑块上，这种独一无二的安装方式可提高内部自动对准的精度并分担载荷，同时保持对滚珠的牢固控制。
Retainer Ball retainer plates now snap assembled to the blocks and this unique assembly method allows an amount of internal self-alignment and load sharing while maintaining rigid ball control.

直线滑块 具有更大的回流半径的高刚度结构可确保平稳运动，滑块长度更长可提高负载能力。
Linear block Highly rigid structure with a lager recirculation radius for the smooth movement and longer block length for higher load capacity.

端盖 采用新型高刚度工程塑料制成。专门用于承受最高的意外冲击载荷而不会断裂。
End-plate Manufactured with a new high rigidity engineered plastic. Designed to withstand the highest of unplanned impact loads without breaking.

回流管 新型滚珠回流管的端盖和回流滑道现在已模塑成一个整体。这能确保滚珠更平稳地流经关键转换点，因而显著提高了滚动性能，减少了运行摩擦，并提升了轴承内部的润滑剂保留性能。
Return tube plate The end plate and reversing ramps of new ball return tubes are now molded as one complete body. This allows for smoother ball rotation through the critical transition points, significantly improving rolling performance, lower operating better lubricant retention inside the bearing.

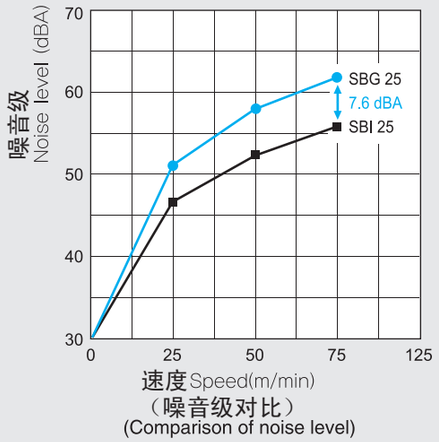
直线导轨 SBI导轨具有低型面和宽底座。这种特征能确保在运行和维护中具有更高的稳定性。因此可提供更高的直线精度。
Linear rail SBI rail is designed with a low profile and wide base. This characteristic allows greater stability in operation and during manufacture. Results in greater linear precision.

直线导轨系统
Linear Rail System

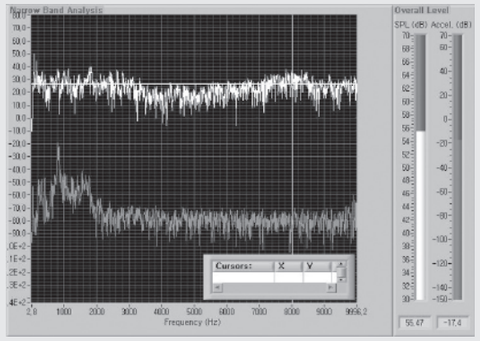
SBI型高负载直线导轨系统
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[低噪音Low noise]

- SBI25/SBG25噪音级测试数据
- SBI25 / SBG25 noise level test data



（噪音级对比）
(Comparison of noise level)

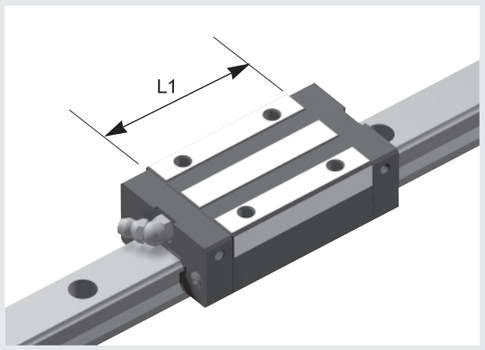


(SBI 1.3m/sec)

[高负载性能High load performance]

SBI型的滑块长度更长，并且弯曲半径得到优化，因此其负载能力显著提升。
SBI type is improved load capacity from the longer block length and changed radius of curvature

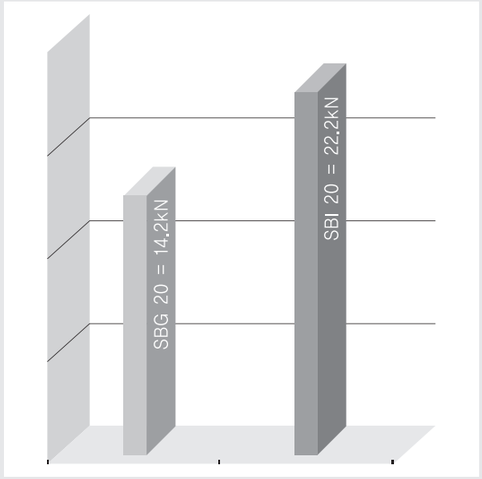
- SBI/SBG滑块的长度对比
  The comparison of SBI / SBG block length



（单位Unit : mm）

长度 L1 length	SBG	SBI
15SL	38.8	45.2
20SL	50.8	56.8
25SL	59.5	70

- 基本额定动载荷对比
  The comparison of basic dynamic load rating



（基本额定动载荷对比）
(Comparison of basic dynamic load rating)

改进的几何外形和公差提高了基本额定动载荷
Improved geometry and tolerances increases basic dynamic load rating

- 额定行程寿命计算的对比
  Comparison of lifetime calculation

- L (km) : 额定行程寿命 Nominal life
- C (kN) : 基本额定动载荷 Basic dynamic load rating
- P (kN) : 计算载荷 Calculated load

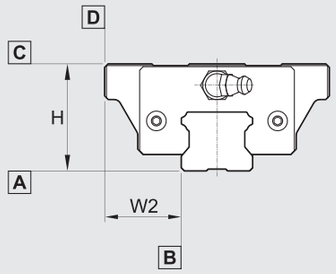
$$L = \left(\frac{C}{P}\right)^3 X\ 50km$$

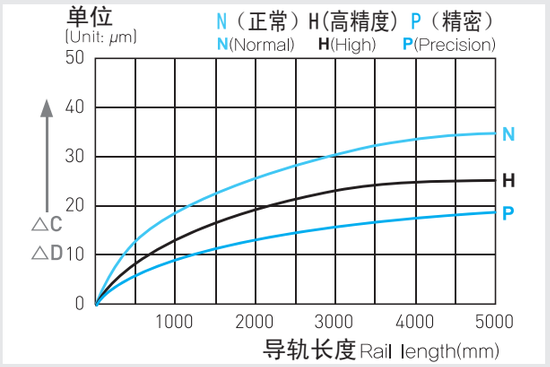
当P = 5kN时
In case of P = 5 kN
SBI20 SL型的基本额定动载荷（C）：22.2 kN
Basic dynamic load rating (C) of SBI20 SL : 22.2 kN
SBG20 SL型的基本额定动载荷（C）：14.2 kN
Basic dynamic load rating (C) of SBG20 SL : 14.2 kN

SBI 20SL : $L = \left(\frac{C}{P}\right)^3 X\ 50 = \left(\frac{22.2}{P}\right)^3 X\ 50 = 4376$ km

SBG 20SL : $L = \left(\frac{C}{P}\right)^3 X\ 50 = \left(\frac{14.2}{P}\right)^3 X\ 50 = 1145$ km

精度
Accuracy





（单位 Unit : mm)

Item	N	H	P
高度H的公差 Tolerance for the height **H**	±0.1	±0.04	±0.02
导轨-滑块横向距离W2的公差 Tolerance for the rail-to-block lateral distance **W2**	±0.1	±0.04	±0.02
滑块之间的高度H差值的公差 Tolerance for the height **H** difference among blocks	0.03	0.015	0.007
滑块之间的导轨-滑块横向距离W2的公差 Tolerance for rail-to-block lateral distance **W2** distance among blocks	0.03	0.015	0.007
表面 C 与表面 A 的运动平行度 Running parallelism of surface C with surface A	△C		
表面 D 与表面 B 的运动平行度 Running parallelism of surface D with surface B	△D		

- N：正常 H：高精度 P：精密
- **N** : Normal **H** : High **P** : Precision

预载 Preload

参考 Reference	预载量 Volume of preload
K0 (无 None)	间隙 Clearance within 0.01mm
K1 (正常 Normal)	最大 Max. 0.02C
K2 (轻 Light)	0.04 ~ 0.06C
K3 (重 Heavy)	0.08 ~ 0.10C

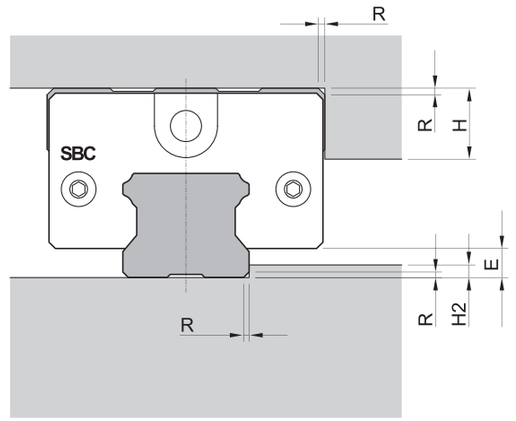
- C(kN)：基本额定动载荷
  C(kN) : Basic dynamic load rating

※ “K3”预载不适用于SBI15型
※ “K3” Preload is not available for SBI15 type

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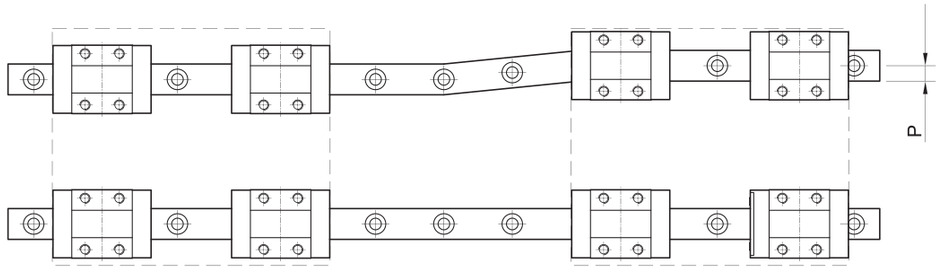
肩高与圆角半径R
Shoulder height and fillet radius R



（单位 Unit : mm)

型号 Model number	圆角半径R Fillet radius R	肩高H1 Shoulders height H1	肩高H2 Shoulders height H2	E
15	0.6	7	2.5	3
20	0.6	8	3.5	4.6
25	1	10	4.5	5.5
30	1	11	5	7
35	1	13	6	7.5
45	1.6	16	8	9
55	1.6	20	10	12
65	1.6	25	15	19

容许平行度公差（P）
Permissible tolerance (P) of parallelism



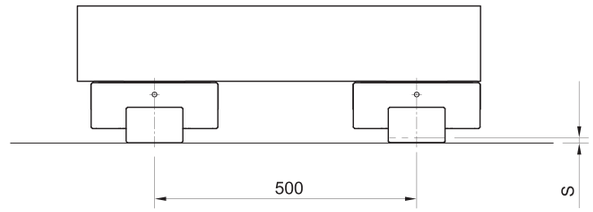
（单位 Unit : mm）

型号尺寸 Model size	K1	K2	K3
15	0.025	0.018	-
20	0.025	0.020	0.018
25	0.030	0.022	0.020
30	0.040	0.030	0.027
35	0.050	0.035	0.030
45	0.060	0.040	0.035
55	0.070	0.050	0.045
65	0.080	0.060	0.055

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双水平偏移的容许公差（S）
Permissible tolerance (S) of two level offset

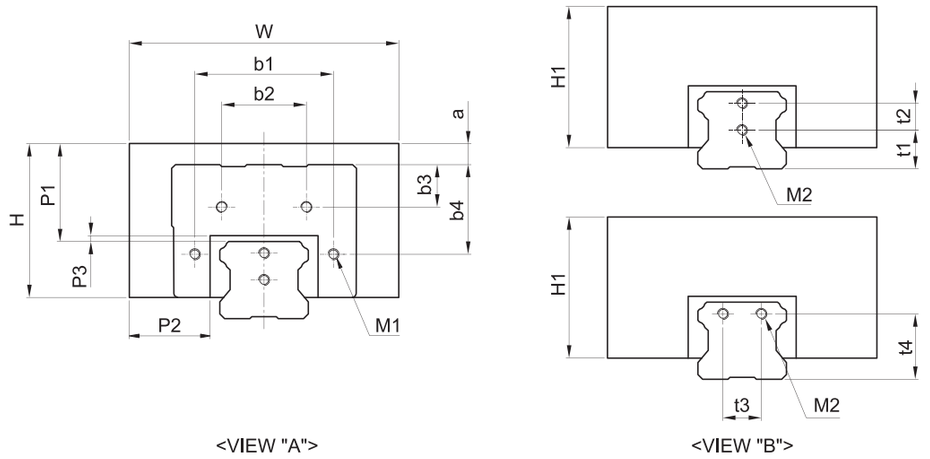


（单位 Unit : mm）

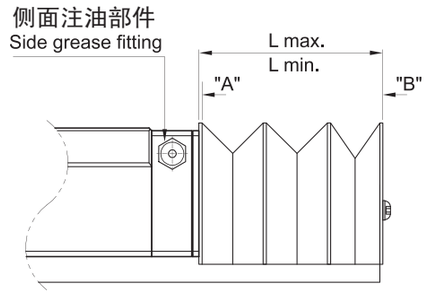
型号尺寸 Model size	K1	K2	K3
15	0.13	0.085	-
20	0.13	0.085	0.05
25	0.13	0.085	0.07
30	0.17	0.11	0.09
35	0.21	0.15	0.12
45	0.25	0.17	0.14
55	0.30	0.21	0.17
65	0.35	0.25	0.20

直线导轨系统
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SH型防尘罩
SH Bellows



<VIEW "A"> <VIEW "B">



[计算防尘罩长度]
[Calculation of bellows length]

$$A = \frac{L_{max}}{L_{min}}$$

- L_{max} : 延伸长度 Extended length (mm)
- L_{min} : 收缩长度 Collapsed length (mm)

	L_{min}	L_{max}
*SBI 15, 20	行程 Stroke ÷ 5	L_{min} + 行程 Stroke
*SBI 25~45	行程 Stroke ÷ 6	
*SBI 55~65	行程 Stroke ÷ 7	

(单位 Unit : mm)

型号 Model number	应用类型 Applicable type	W	H	H1	P1	P2	P3	a（*尺寸取决于滑块类型） a (*Dimensions according to block types) FV	SV	CL	FL	SL	HL	b1	b2
SH15 A	SBI15	50	25	25	15	15.5	1	4	4	-	4	0	4	26	-
SH15 DA			20	20	10			-1	-1	-	-1	-5	-1		
SH20 A	SBI20	60	29	31	17	18	1	5.5	5.5	5.5	3.5	3.5	-	34	-
SH20 DA			24	26	12			-	-	-	-1.5	-1.5	-	(32)	
SH25 A	SBI25	70	35	35	20	21	1	7	7	7	4	0	4	36	-
SH25 DA			30	30	15			-	-	-	-1	-5	-1		
SH30 A	SBI30	80	36	36	20	23	1	-	-	-	1	-2	1	49	-
SH30 DA			33	33	17			-	-	-	-2	-5	-2		
SH35 DA	SBI35	85	39	39	20	22.5	1	-	-	-	-2	-9	-2	56	-
SH45 DA	SBI45	100	48	48	25	25	1	-	-	-	-3	-13	-3	72	-
SH55 DA	SBI55	110	56	56	30	25	1	-	-	-	-2	-12	-2	74	53.4
SH65 DA	SBI65	130	69	69	35	30	1	-	-	-	-2	-2	-	90	64

(单位 Unit : mm)

b3 FL	b3 SL	b3 HL	b4 FV	b4 SV	b4 CL	b4 FL	b4 SL	b4 HL	t1	t2	t3	t4	M x 螺栓长度 M x Bolt length M1(Block) M1（滑块）	M2(Rail) M2（导轨）	A 延伸率 A Extended ratio
-	-	-	13.3	13.3	-	13.3	17.3	13.3	10	-	-	-	M3X16	M4X8	6
-	-	-	14	14	14	16	16	-	6	8	-	-	M3X18	M3X6	6
-	-	-	16.3	16.3	16.3	19.3	23.3	19.3	10	7	-	-	M3X18	M3X6	7
-	-	-	-	-	-	22.8	25.8	22.8	11	8	-	-	M4X22	M4X8	7
-	-	-	-	-	-	26.5	33.5	26.5	-	-	14	21	M4X22	M4X8	7
-	-	-	-	-	-	33.5	43.5	33.5	-	-	20	25	M4X25	M5X10	7
7	17	7	-	-	-	38.5	48.5	38.5	-	-	26	29	M5X30	M5X10	8
7	7	-	-	-	-	45	45	-	-	-	34	42	M5X35	M5X10	8

*b1栏内的尺寸仅适用于SBI20CLS型。
The column of b1 dimension is only applying for SBI20CLS type.

*“a、b3和b4”栏内的尺寸常用于FL=FLL、SL=SLL和HL=HLL、HLS。
The dimension in column “a, b3 and b4” are common for FL=FLL, SL=SLL and HL=HLL, HLS.

*如果使用了SH型防尘罩，需要使用导轨端部安装孔。
If SH bellows are applying, rail end mounting holes are necessary.

*在选择SH型防尘罩时，请选择用于润滑的侧面注油部件。
When you select SH bellows, please select the side grease fitting for lubrication.

*请联系SBC公司了解更多信息。
Please contact SBC for more information.

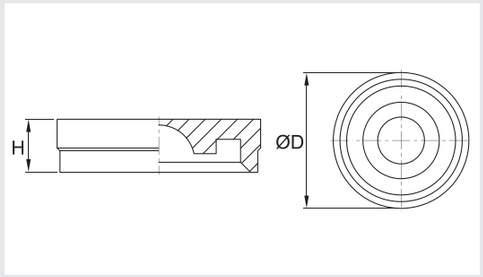
订购实例
Ordering example : **SH25A – 70 / 420**
❶ ❷ ❸

❶ 型号 Model number
❷ 缩长度 Collapsed length (mm)
❸ 伸长度 Extended length (mm)

※SH-DA型的H尺寸小于SH-A型的尺寸。
※ 'H' dimesion of SH-DA type is lower than SH-A type

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RC型孔帽
RC Cap

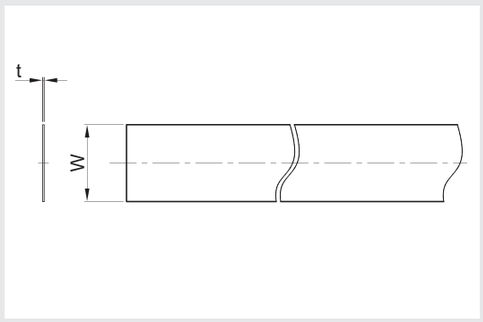


（单位 Unit : mm）

型号 Model	D±0.1	H±0.1
RC 15	7.6	1.3
RC 20	9.6	3.5
RC 25	11.1	2.8
*RC 30	14.2	3.7
RC 45	20.2	4.7
RC 55	23.2	6
RC 65	26.2	6

- RC 30 用于SBI30、35导轨
  RC 30 is used for SBI 30, 35 rail.
- BI/SBG 型使用相同的RC型孔帽。
  SBI, SBG type use same RC cap.

ST型防尘带
ST Tape



（单位 Unit : mm）

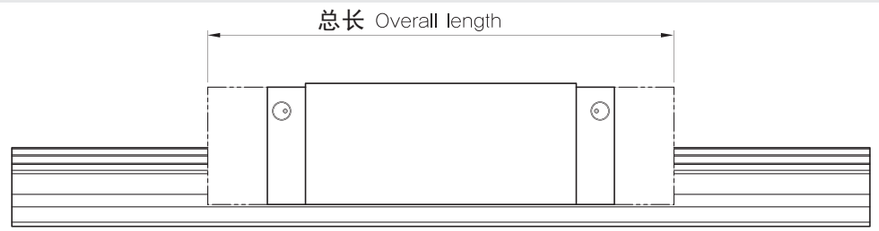
型号 Model	W	t
ST 15A	11	0.1
ST 20A	15	0.1
ST 25A	17	0.1
ST 30A	21	0.1
ST 35A	27	0.1
ST 45A	37	0.1
ST 55A	43	0.1
ST 65A	51	0.1

订购实例：
Ordering example : **ST15A** - **1000L**
❶ ❷

❶型号 Model number
❷长度 Length

密封与MF润滑器
Seal and MF container

[每个密封的安装方法和总长]
[Method and overall length with each seal]

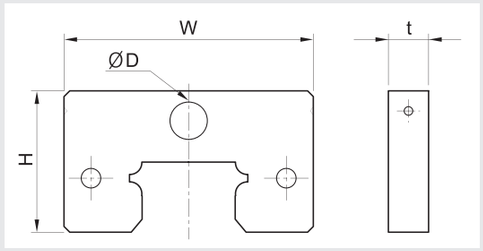


- E：双密封盖 S：刮片F： DF（高级防尘盖） MF（自动润滑器）
  E : End seal S : Scraper F : DF (High dust protection seal). MF (Self lubricant)

（单位 Unit : mm）

附加密封 Additional seal		标准 Standard	DD	ZZ	KK	D(M)F	D(M)FDD	D(M)FZZ	D(M)FKK
密封标识 Indication of seal		E	E+E	E+S	E+E+S	F+E	F+E+E	F+E+S	F+E+E+S
加密封后的总长 Overall length with seal	15V	39.9	44.5	45.3	49.9	53.9	58.5	59.3	63.9
	15S	56.8	61.4	62.2	68.8	70.8	75.4	76.2	80.8
	15	63.8	68.4	69.2	73.8	77.8	82.4	83.2	87.8
	15L	79.4	84	84.8	89.4	93.4	98	98.8	103.4
	20V	49.1	54.1	54.5	59.5	63.1	68.1	68.5	73.5
	20S	65.2	70.2	70.6	75.6	–	–	–	–
	20	78.8	83.8	84.2	89.2	92.8	97.8	98.2	103.2
	20L	96.4	101.4	101.8	106.8	110.4	115.4	115.8	120.8
	25V	52.6	57.6	58	63	66.6	71.6	72	77
	25	92	97	97.4	102.4	106	111	111.4	116.4
	25L	108	113	113.4	118.4	122	127	127.4	132.4
	30	107.6	113.6	114	120	123.6	129.6	130	136
	30L	131.6	137.6	138	144	147.6	153.6	154	160
	35	124.6	130.6	131	137	140.6	146.6	147	153
	35L	152.6	158.6	159	165	168.6	174.6	175	181
	45	142	148	148.4	154.4	158	164	164.4	170.4
	45L	174	180	180.4	186.4	190	196	196.4	202.4
	55	172.4	179.4	179.2	186.2	190.4	197.4	197.2	204.2
	55L	211.8	218.8	218.6	225.6	229.8	236.8	236.6	243.6
	65	219.8	226.8	226.6	233.6	237.8	244.8	244.6	251.6
	65L	272.2	279.2	279	286	290.2	297.2	297	304

- SBI型的底部密封能与底部保持板集成（SBI15型除外）
  Bottom seal of SBI type is integrated with bottom retainer. (Except SBI15)
- 如果滑块安装了MF润滑器，就不再提供注油部件。如果您需要为滑块注油，请订购侧面注油部件。
  If block is assembled with MF container, the grease fitting is not supplied. If you would like to feed the grease to the block, please order side grease fitting type.



[MF润滑器的尺寸]
[Dimension of MF container]

(单位Unit : mm)

参考 Reference	型号 Model	应用型号 Applied model	滑块类型 Block type	W	t	H	D
DF / MF	15A	SBI15	FL/FLL/HL/HLL/HLS SL/SLL/FV/SV	33.4	7	20.2	4
	20A	SBI20	FL/FLL SL/SLL	43.4	7	24.6	6.5
	20B		CL/CLL/FV/SV			22.6	
	25A	SBI25	FL/FLL/HL/HLL SL/SLL	47	7	29.7	6.5
	25B		CL/CLL/FV/SV			26.7	
	30A	SBI30	FL/FLL/HL/HLL SL/SLL	59	8	34.2	6.5
	35A	SBI35	FL/FLL/HL/HLL SL/SLL	69	8	39.7	6.5
	45A	SBI45	FL/FLL/HL/HLL SL/SLL	85	8	49.7	10.5
	55A	SBI55	FL/FLL/HL/HLL SL/SLL	98	9	56	10.5
	65A	SBI65	FL/FLL SL/SLL	123	9	69	10.5

[密封阻力Seal resistance]

未用润滑脂润滑时，每个滑块的SBI标准型的密封阻力最大值。

For the maximum value of seal resistance of SBI standard type per block, in which grease is not applied.

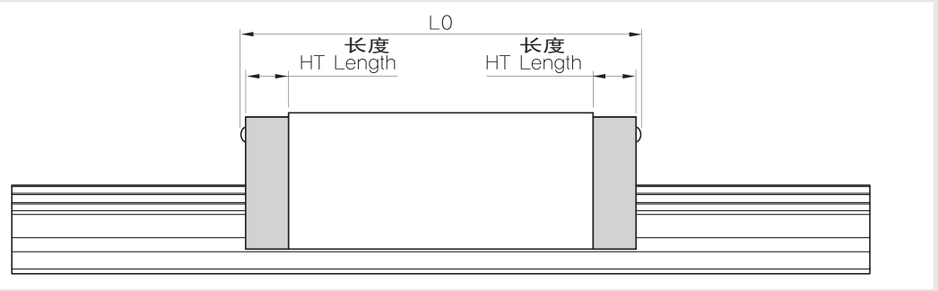
※ 刮片没有阻力，因为它不接触滑轨。

※ Scraper has no resistance because it is not contacting rail.

(单位Unit : N)

型号 Model	双密封盖 End seal	DF	MF
SBI 15	2.0	4.7	3.5
SBI 20	2.5	4.9	3.0
SBI 25	3.0	5.5	3.5
SBI 30	3.9	5.6	3.5
SBI 35	2.5	5.7	3.7
SBI 45	3.4	5.9	4.1
SBI 55	3.5	6.2	4.2
SBI 65	3.6	6.4	4.4

HT型高温端盖
HT high temperature end plate



(单位Unit : mm)

参考 Reference	HT 长度 Length	总长 Overall length							
		应用型号 Applied model	L0	应用型号 Applied model	L0	应用型号 Applied model	L0	应用型号 Applied model	L0
HT 15A	6.5	SBI 15V	38.3	SBI 15S	53.2	SBI 15	62.2	SBI 15L	77.8
HT 20A	8	SBI 20V	47.1	SBI 20S	63.2	SBI 20	76.8	SBI 20L	94.4
HT 25A	8	SBI 25V	50.6	-	-	SBI 25	90	SBI 25L	106
HT 30A	10	-	-	-	-	SBI 30	105.6	SBI 30L	129.6
HT 35A	11	-	-	-	-	SBI 35	122.6	SBI 35L	150.6
HT 45A	13	-	-	-	-	SBI 45	140	SBI 45L	172
HT 55A	16	-	-	-	-	SBI 55	168.5	SBI 55L	207.9
HT 65A	20	-	-	-	-	SBI 65	215.9	SBI 65L	268.3

订购实例
Ordering example :

SBI25FL - HT - 2 - K1 - 800 - N
❶ ❷ ❸ ❹ ❺ ❻

❶ 型号 Model
❷ 高温端盖 High temperature end plate
❸ 滑块数量 Block quantity
❹ 预载 Preload
❺ 导轨长度 Rail length
❻ 精度 Accuracy

※ 高温滑块内的所有塑料组件均换成钢制或铝制组件。
All plastic components are replace with steel or aluminum in the High Temperature Blocks.

※ 侧面注油部件不适用于高温端盖。
Side grease fitting is not available for high temperature end plates

润滑脂与注油部件规范
Grease and nipple specification

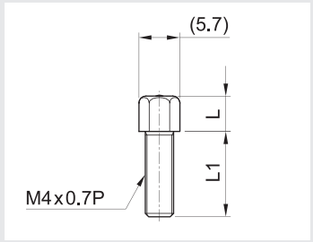
[润滑脂 Grease]

SBI型可根据运行条件使用两类润滑脂。
SBI uses two types of grease according to working conditions.

请参见润滑脂的技术数据了解详情。
For details, please see the technical data for grease.

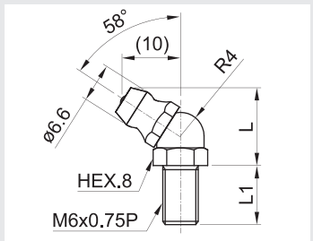
直线导轨系统
Linear Rail System
SBI型高负载直线导轨系统
SBI High-load Linear Rail System

(1) 标准注油部件（前部注油部件）
Standard grease fitting (Front grease fitting)



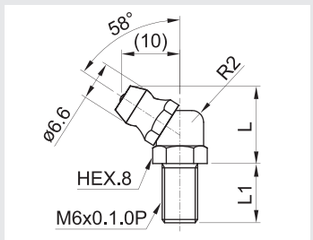
(单位Unit : mm)

规范 Specification		M4x0.7P		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBI 15	1N	无 None	7	5.5
	1D	DD, ZZ	5	9
	1Z	KK	5	11
	1F	DF,DFDD, DFZZ, DFKK	5	13



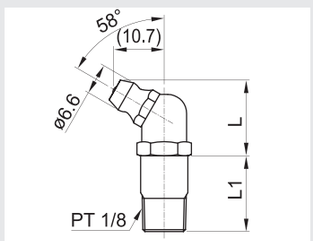
(单位Unit : mm)

规范 Specification		亚洲型 M6x0.75P, Asia type		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBI 20~35	IA2N	无 None	13.5	7
	IA2D	DD, ZZ	13.5	10
	IA2Z	KK, DF	13.5	13
	IA2F	DFDD, DFZZ, DFKK	13.5	18



(单位Unit : mm)

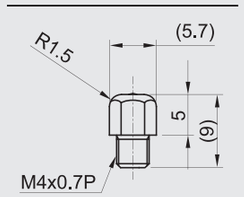
规范 Specification		欧洲型 M6x1.0P, Europe type		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBI 20~35	IE2N	无 None	13.5	7
	IE2D	DD, ZZ	13.5	10
	IE2Z	KK, DF	13.5	13
	IE2F	DFDD, DFZZ, DFKK	13.5	18



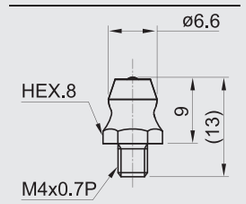
(单位Unit : mm)

规范 Specification		PT 1/8		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBI 45~65	4N	无 None	17	12
	4D	DD, KK, ZZ	17	16
	4F	DF, DFDD, DFZZ, DFKK	17	23

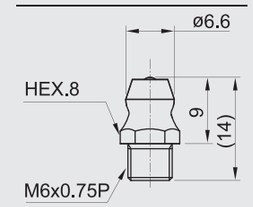
(2) 侧面注油部件
Side grease fitting



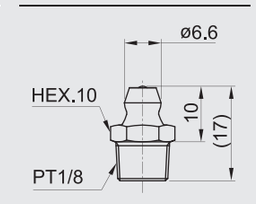
规范 Specification	M4x0.7P
应用型号 Applied model	SBI 15
注油部件型号 Grease fitting model	S1N



规范 Specification	M4x0.7P
应用型号 Applied model	SBI 20, 25
注油部件型号 Grease fitting model	S2N

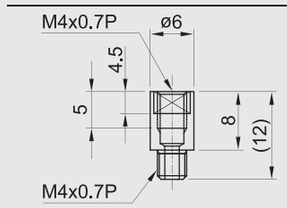


规范 Specification	M6x0.75P
应用型号 Applied model	SBI 30, 35, 45
注油部件型号 Grease fitting model	S3N

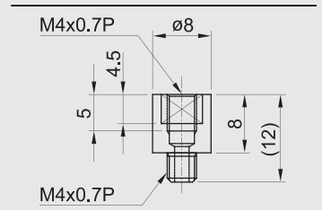


规范 Specification	PT1/8
应用型号 Applied model	SBI 55, 65
注油部件型号 Grease fitting model	S4N

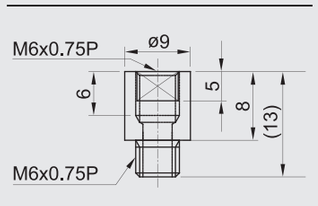
(3) FS型侧面注油部件接头（仅适用于FL/FLL法兰型）※请参见ⓐ/36页了解注油部件接头的安装方法。
FS nipple connector for side grease fitting (FL. FLL flange type only) ※Please see the page ⓐ/36 for assembling the nipple connector.



规范 Specification	M4x0.7P
应用型号 Applied model	SBI 15
注油部件型号 Grease fitting model	S1C



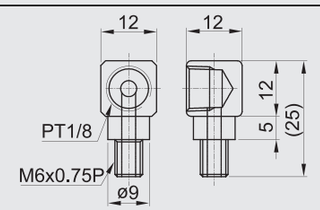
规范 Specification	M4x0.7P
应用型号 Applied model	SBI 20, 25
注油部件型号 Grease fitting model	S2C



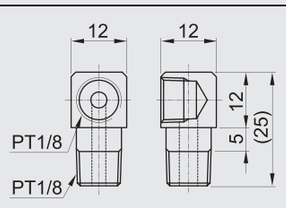
规范 Specification	M6x0.75P
应用型号 Applied model	SBI 30, 35, 45
注油部件型号 Grease fitting model	S4C

* For size 30~45, two pieces of FS nipple connector are applied.

(4) 铜管
Copper pipe



输入尺寸 Input size	PT1/8
输出尺寸 Output size	M6x0.75P
应用型号 Applied model	SBI 20, 25, 30, 35
注油部件型号 Grease fitting model	SB01



输入尺寸 Input size	PT1/8
输出尺寸 Output size	PT1/8
应用型号 Applied model	SBI 45, 55, 65
注油部件型号 Grease fitting model	SB21

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

订购实例
Ordering example

SBI20 FL – N – MF – ZZ – K1
[1] [2] [3] [4] [5] [6]

[1] 型号
Model
[2] 滑块类型：FL、FLL、FV、SL、SLL、SV、HL、HLS、HLL、CL、CLS、CLL
Block type : FL, FLL, FV, SL. SLL, SV, HL, HLS, HLL, CL, CLS, CLL
[3] 注油部件位置：无符号（前部），N（侧面）
Position of grease fitting : None (front), N (side)
[4] 容器：无符号（标准），DF（高级防尘），MF（自动润滑）
Container : No symbol (standard), DF (high dust protection), MF (self lubricant)
[5] 密封：无符号（标准），DD、ZZ、KK
Seal : No symbol (standard), DD, ZZ, KK
[6] 预载：K0、K1、K2、K3
Preload : K0, K1, K2 ,K3

※ “K3” 预载不适用于SBI 15型
“K3” Preload is not available for SBI 15 type

[导轨订购实例]
[Ordering example for rail]

SBI20 – 1000L – B
[1] [2] [3]

[1] 型号
Model
[2] 导轨长度
Rail length
[3] 底部安装：无符号（标准），B（底部安装导轨）
Bottom mounting : No symbol (standard), B (bottom mounting rail)

※ 只有订购导轨N级精度才适用。
If only rail is ordered, N grade is available.

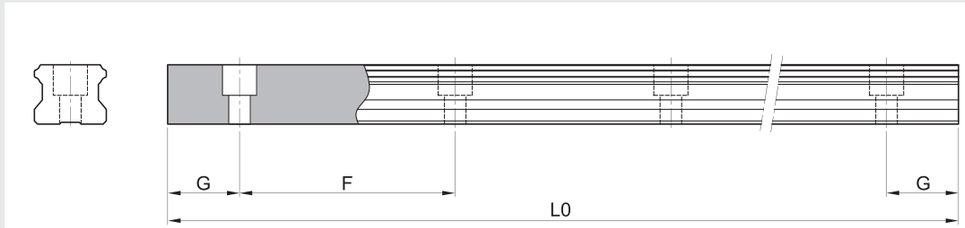
[订购导轨与滑块组合]
[Ordering for assembled rail and block]

SBI20 FL – N – MF – ZZ – 2 – K1 – 800 – N – R – B – II
[1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12]

[1] 型号
Model
[2] 滑块类型：FL、FLL、FV、SL、SLL、SV、HL、HLS、HLL、CL、CLS、CLL
Block type : FL, FLL, FV, SL. SLL, SV, HL, HLS, HLL, CL, CLS, CLL
[3] 注油部件位置：无符号（前部），N（侧面）
Position of grease fitting : None (front), N (side)
[4] 容器：无符号（标准），DF（高级防尘），MF（自动润滑）
Container : No symbol (standard), DF (high dust protection), MF (self lubricant)
[5] 密封：无符号（标准），DD、ZZ、KK
Seal : No symbol (standard), DD, ZZ, KK
[6] 导轨上的滑块数量
Block quantity on rail
[7] 预载：K0、K1、K2、K3
Preload : K0, K1, K2 ,K3
[8] 导轨长度
Rail length
[9] 精度：N、H、P
Accuracy : N, H, P
[10] 表面处理
Surface treatment
[11] （B）底部安装导轨：无符号（标准）
(B) Bottom mounting rail : No symbol (standard)
[12] 导轨：每个轴的导轨数量，1=I，2=II. . . 4=IV等
Rail : number of rails per axis, 1=I, 2=II... 4=IV etc.

※ 如需更高的精度和刚度，建议订购滑块和导轨组合。
We recommend block and rail assembled to be ordered where high-precision and high-rigidity are required.
※ 如需表面处理，请根据每种表面处理符号正确标记。
For surface treatment, please mark according to each surface treatment symbol.
※ 如需特殊尺寸G，请在订购时正确标记。
If special G dimension is required, please mark when you place an order.
※ 如需高温运行条件，请联系SBC公司。
Please contact SBC for high temperature order.
※ “K3”预载不适用于SBI 15型。
“K3” Preload is not available for SBI 15 type

SBI导轨的标准和最大长度
Standard and Max. Length of SBI rail



（单位Unit : mm）

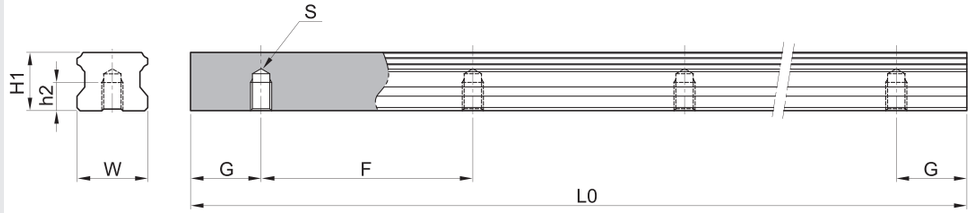
型号 Model number	SBI15	SBI20	SBI25	SBI30	SBI35	SBI45	SBI55	SBI65
标准长度 Standard length	160	220	220	280	280	570	780	1270
	220	280	280	440	440	885	900	1570
	280	240	340	600	600	1095	1020	2020
	340	460	460	760	760	1200	1140	2470
	460	640	640	1000	1000	1410	1260	2620
	640	820	820	1240	1240	1620	1380	2920
	820	1000	1000	1480	1480	1830	1500	3070
	1000	1240	1240	1640	1640	2040	1620	-
	1240	1480	1480	1800	1800	2250	1740	-
	1480	1600	1600	2040	2040	2460	1860	-
	1600	1840	1840	2200	2200	2985	1980	-
	1960	2080	2080	2520	2520	3510	2220	-
	2200	2200	2200	2840	2840	-	2580	-
	2500	2500	2500	3000	3000	-	2940	-
	2860	2960	2980	3480	3480	-	3540	-
	-	3520	3520	-	-	-	-	-
	-	4000	4000	-	-	-	-	-
F	60	60	60	80	80	105	120	150
G	20	20	20	20	20	22.5	30	35
L0（最大长度） L0(Max length)	3,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000

* 如果最大长度超过该尺寸，可提供对接接头。
  If the maximum length exceeds this size, butt joints can be supplied.
* 请参见安全设计页面，了解有关对接接头的更多信息。
  For more information about butt jointing, please refer to the page of safety design.
* 如果G不是标准型，请在订单中注明。
  If the G is not standard, please indicate it in the order sheet.

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

底部安装导轨（SBI-B型）
Bottom mounting rail (SBI-B type)



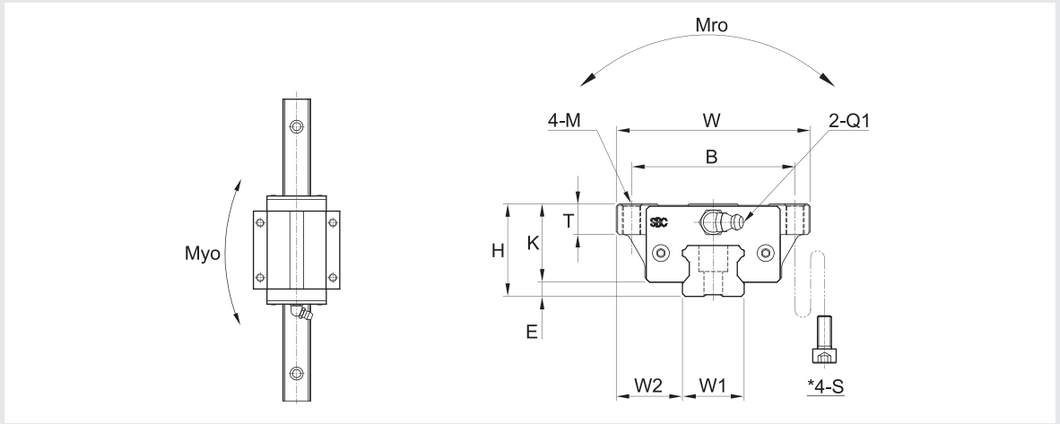
（单位Unit : mm）

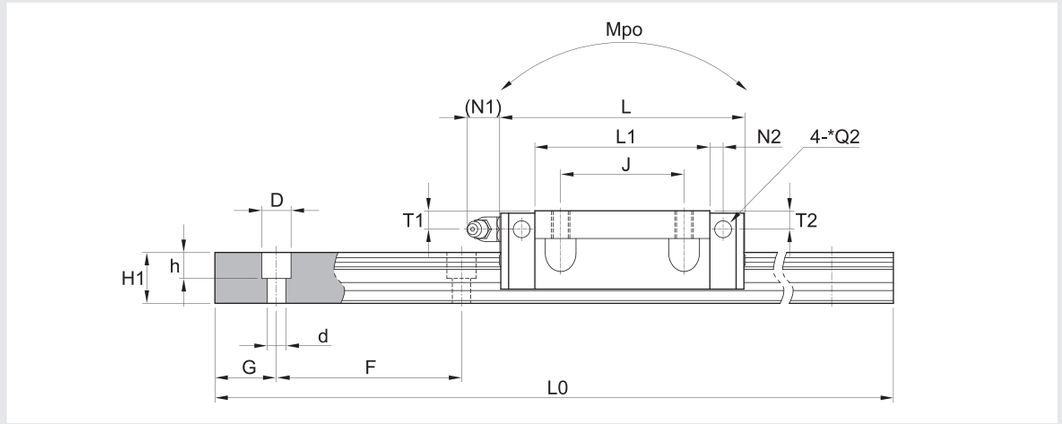
型号 Model number	W1	H1	S	h2	G	F	L0（最大长度）(Max length)	重量 Weight (kg/m)
SBI 15-B	15	13	M5X0.8	8	20	60	3,000	1.39
SBI 20-B	20	16.5	M6	9	20	60	4,000	2.37
SBI 25-B	23	20	M6	9	20	60	4,000	3.26
SBI 30-B	28	23	M8	12	20	80	4,000	4.63
SBI 35-B	34	26	M8	12	20	80	4,000	6.45
SBI 45-B	45	32	M12	18	22.5	105	4,000	10.49

* 如果最大长度超过该尺寸，请联系SBC公司。
  If the maximum length exceeds this size, please contact SBC.

直线导轨系统
Linear Rail System
SBI型高负载直线导轨系统
SBI High-load Linear Rail System

SBI-FL/FLL





（单位Unit : mm）

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions													
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T±1	K	注油部件 Grease fitting						
					B	J	M	*S				T1	N1	T2	N2	Q1	*Q2	
SBI15 FL	24	47	63.8	3	38	30	M5	M4	45.2	9	21	4.5	5.5	3.8	3.8	M4x0.7	Ø3.5	
SBI15 FLL	24	47	79.4	3	38	30	M5	M4	60.8	9	21	4.5	5.5	3.8	3.8	M4x0.7	Ø3.5	
SBI20 FL	30	63	78.8	4.6	53	40	M6	M5	56.8	12	25.4	6	12	5.8	5	M6x0.75	Ø3.5	
SBI20 FLL	30	63	96.4	4.6	53	40	M6	M5	74.4	12	25.4	6	12	5.8	5	M6x0.75	Ø3.5	
SBI25 FL	36	70	92	5.5	57	45	M8	M6	70	14	30.5	6	12	5	5	M6x0.75	Ø3.5	
SBI25 FLL	36	70	108	5.5	57	45	M8	M6	86	14	30.5	6	12	5	5	M6x0.75	Ø3.5	
SBI30 FL	42	90	107.6	7	72	52	M10	M8	79.6	15.5	35	8.5	12	7.8	5	M6x0.75	Ø5.7	
SBI30 FLL	42	90	131.6	7	72	52	M10	M8	103.6	15.5	35	8.5	12	7.8	5	M6x0.75	Ø5.7	
SBI35 FL	48	100	124.6	7.5	82	62	M10	M8	94.6	15	40.5	8	12	8	6	M6x0.75	Ø5.7	
SBI35 FLL	48	100	152.6	7.5	82	62	M10	M8	122.6	15	40.5	8	12	8	6	M6x0.75	Ø5.7	
SBI45 FL	60	120	142	9	100	80	M12	M10	108	18	51	10.5	13.5	9.3	6.5	PT1/8	Ø5.7	
SBI45 FLL	60	120	174	9	100	80	M12	M10	140	18	51	10.5	13.5	9.3	6.5	PT1/8	Ø5.7	
SBI55 FL	70	140	172.4	12	116	95	M14	M12	131	22	58	12	13	12	8	PT1/8	Ø8.7	
SBI55 FLL	70	140	211.8	12	116	95	M14	M12	170.4	22	58	12	13	12	8	PT1/8	Ø8.7	
SBI65 FL	90	170	219.8	19	142	110	M16	M14	170.4	26	71	14	13	14	10	PT1/8	Ø8.7	
SBI65 FLL	90	170	272.2	19	142	110	M16	M14	222.8	26	71	14	13	14	10	PT1/8	Ø8.7	

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	16	13	60	4.5	7.5	5.5	20	3000	14.1	24.1	0.16	0.17	0.17	0.19	1.3
15	16	13	60	4.5	7.5	5.5	20	3000	17.1	31.7	0.21	0.29	0.29	0.26	1.3
20	21.5	16.5	60	6	9.5	8.5	20	4000	22.2	38.2	0.36	0.33	0.33	0.41	2.2
20	21.5	16.5	60	6	9.5	8.5	20	4000	27.9	50	0.47	0.56	0.56	0.54	2.2
23	23.5	20	60	7	11	9	20	4000	31.5	52.1	0.56	0.56	0.56	0.69	3
23	23.5	20	60	7	11	9	20	4000	36.7	64.4	0.69	0.84	0.84	0.85	3
28	31	23	80	9	14	12	20	4000	42.8	65.4	0.85	0.77	0.77	1.04	4.25
28	31	23	80	9	14	12	20	4000	51.3	84.7	1.10	1.30	1.30	1.37	4.25
34	33	26	80	9	14	12	20	4000	59.5	89.1	1.42	1.28	1.28	1.56	6.02
34	33	26	80	9	14	12	20	4000	71.3	115.3	1.83	2.12	2.12	2.04	6.02
45	37.5	32	105	14	20	17	22.5	4000	79.2	116.3	2.48	1.90	1.90	2.80	9.77
45	37.5	32	105	14	20	17	22.5	4000	94.8	150.5	3.21	3.14	3.14	3.69	9.77
53	43.5	38	120	16	23	20	30	4000	127.3	181.8	4.81	2.97	2.97	4.42	13.72
53	43.5	38	120	16	23	20	30	4000	147.9	224.5	5.95	4.78	4.78	5.82	13.72
63	53.5	53	150	18	26	22	35	4000	188.3	261.7	8.24	5.57	5.57	9.1	23.17
63	53.5	53	150	18	26	22	35	4000	232.5	354.1	11.15	9.86	9.86	11.98	23.17

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

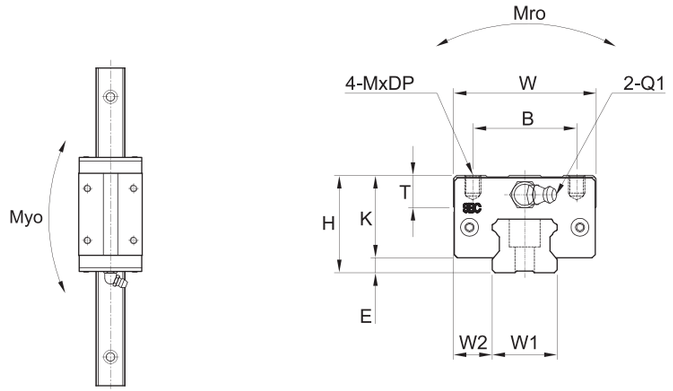
❷ *S：底部安装型滑块的螺栓尺寸。
*S: Bolt size for bottom mounting type of block.

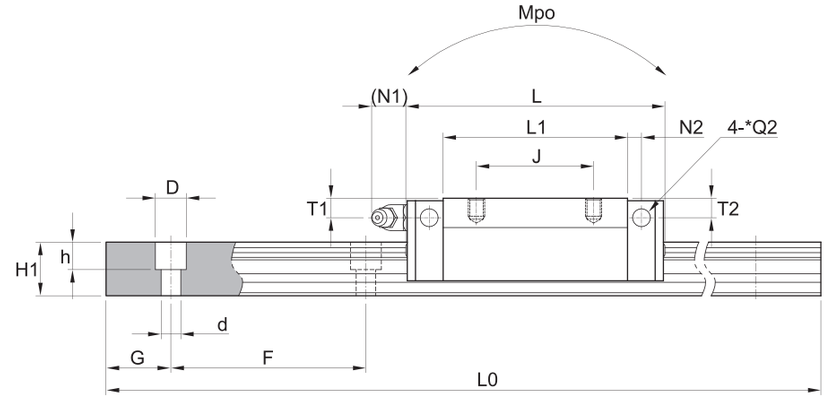
❸ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

SBI-SL/SLL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions													
					安装螺纹孔 Mounting tap hole				L1	T±1	K	注油部件 Grease fitting						
	H	W	L	E	B	J	M	DP				T1	N1	T2	N2	Q1	*Q2	
SBI15 SL	28	34	63.8	3	26	26	M4	5	45.2	10	25	8.5	5.5	7.8	3.8	M4x0.7	Ø3.5	
SBI15 SLL	28	34	79.4	3	26	34	M4	5	60.8	10	25	8.5	5.5	7.8	3.8	M4x0.7	Ø3.5	
SBI20 SL	30	44	78.8	4.6	32	36	M5	5	56.8	10	25.4	6	12	5.8	5	M6x0.75	Ø3.5	
SBI20 SLL	30	44	96.4	4.6	32	50	M5	5	74.4	10	25.4	6	12	5.8	5	M6x0.75	Ø3.5	
SBI25 SL	40	48	92	5.5	35	35	M6	8	70	16	34.5	10	12	9	5	M6x0.75	Ø3.5	
SBI25 SLL	40	48	108	5.5	35	50	M6	8	86	16	34.5	10	12	9	5	M6x0.75	Ø3.5	
SBI30 SL	45	60	107.6	7	40	40	M8	10	79.6	12	38	11.5	12	10.8	5	M6x0.75	Ø5.7	
SBI30 SLL	45	60	131.6	7	40	60	M8	10	103.6	12	38	11.5	12	10.8	5	M6x0.75	Ø5.7	
SBI35 SL	55	70	124.6	7.5	50	50	M8	10	94.6	15	47.5	15	12	15	6	M6x0.75	Ø5.7	
SBI35 SLL	55	70	152.6	7.5	50	72	M8	10	122.6	15	47.5	15	12	15	6	M6x0.75	Ø5.7	
SBI45 SL	70	86	142	9	60	60	M10	13	108	17	61	20.5	13.5	19.3	6.5	PT1/8	Ø5.7	
SBI45 SLL	70	86	174	9	60	80	M10	13	140	17	61	20.5	13.5	19.3	6.5	PT1/8	Ø5.7	
SBI55 SL	80	100	172.4	12	75	75	M12	18	131	21	68	22	13	22	8	PT1/8	Ø8.7	
SBI55 SLL	80	100	211.8	12	75	95	M12	18	170.4	21	68	22	13	22	8	PT1/8	Ø8.7	
SBI65 SL	90	126	219.8	19	76	70	M16	16	170.4	26	71	14	13	14	10	PT1/8	Ø8.7	
SBI65 SLL	90	126	272.2	19	76	120	M16	16	222.8	26	71	14	13	14	10	PT1/8	Ø8.7	

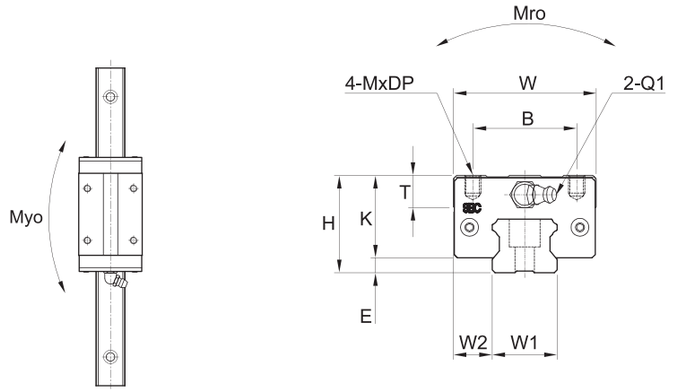
导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	9.5	13	60	4.5	7.5	5.5	20	3000	14.1	24.1	0.16	0.17	0.17	0.19	1.3
15	9.5	13	60	4.5	7.5	5.5	20	3000	17.1	31.7	0.21	0.29	0.29	0.26	1.3
20	12	16.5	60	6	9.5	8.5	20	4000	22.2	38.2	0.36	0.33	0.33	0.41	2.2
20	12	16.5	60	6	9.5	8.5	20	4000	27.9	50	0.47	0.56	0.56	0.54	2.2
23	12.5	20	60	7	11	9	20	4000	31.5	52.1	0.56	0.56	0.56	0.69	3
23	12.5	20	60	7	11	9	20	4000	36.7	64.4	0.69	0.84	0.84	0.85	3
28	16	23	80	9	14	12	20	4000	42.8	65.4	0.85	0.77	0.77	1.04	4.25
28	16	23	80	9	14	12	20	4000	51.3	84.7	1.10	1.30	1.30	1.37	4.25
34	18	26	80	9	14	12	20	4000	59.5	89.1	1.42	1.28	1.28	1.56	6.02
34	18	26	80	9	14	12	20	4000	71.3	115.3	1.83	2.12	2.12	2.04	6.02
45	20.5	32	105	14	20	17	22.5	4000	79.2	116.3	2.48	1.90	1.90	2.80	9.77
45	20.5	32	105	14	20	17	22.5	4000	94.8	150.5	3.21	3.14	3.14	3.69	9.77
53	23.5	38	120	16	23	20	30	4000	127.3	181.8	4.81	2.97	2.97	4.42	13.72
53	23.5	38	120	16	23	20	30	4000	147.9	224.5	5.95	4.78	4.78	5.82	13.72
63	31.5	53	150	18	26	22	35	4000	188.3	261.7	8.24	5.57	5.57	9.1	23.17
63	31.5	53	150	18	26	22	35	4000	232.5	354.1	11.15	9.86	9.86	11.98	23.17

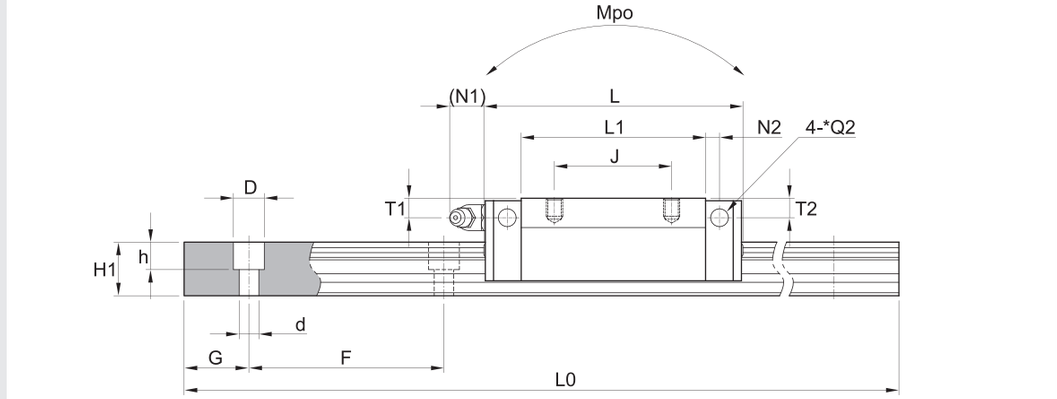
❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)
*Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
❷ 在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

SBI-HL/HLS/HLL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions												
					安装螺纹孔 Mounting tap hole				L1	T±1	K	注油部件 Grease fitting					
	H	W	L	E	B	J	M	DP				T1	N1	T2	N2	Q1	*Q2
SBI15 HL	24	34	63.8	3	26	26	M4	4	45.2	6	21	4.5	5.5	3.8	3.8	M4x0.7	Ø3.5
SBI15 HLS	24	34	56.8	3	26	26	M4	4	38.2	6	21	4.5	5.5	3.8	3.8	M4x0.7	Ø3.5
SBI15 HLL	24	34	79.4	3	26	34	M4	4	60.8	6	21	4.5	5.5	3.8	3.8	M4x0.7	Ø3.5
SBI25 HL	36	48	92	5.5	35	35	M6	6	70	12	30.5	6	12	5	5.5	M6x0.75	Ø3.5
SBI25 HLL	36	48	108	5.5	35	50	M6	6	86	12	30.5	6	12	5	5.5	M6x0.75	Ø3.5
SBI30 HL	42	60	107.6	7	40	40	M8	8	79.6	12	35	8.5	12	7.8	5	M6x0.75	Ø5.7
SBI30 HLL	42	60	131.6	7	40	60	M8	8	103.6	12	35	8.5	12	7.8	5	M6x0.75	Ø5.7
SBI35 HL	48	70	124.6	7.5	50	50	M8	8	94.6	15	40.5	8	12	8	6	M6x0.75	Ø5.7
SBI35 HLL	48	70	152.6	7.5	50	72	M8	8	122.6	15	40.5	8	12	8	6	M6x0.75	Ø5.7
SBI45 HL	60	86	142	9	60	60	M10	10	108	17	51	10.5	13.5	9.3	6.5	PT1/8	Ø5.7
SBI45 HLL	60	86	174	9	60	80	M10	10	140	17	51	10.5	13.5	9.3	6.5	PT1/8	Ø5.7
SBI55 HL	70	100	172.4	12	75	75	M12	12	131	21	58	12	13	12	8	PT1/8	Ø8.7
SBI55 HLL	70	100	211.8	12	75	95	M12	12	170.4	21	58	12	13	12	8	PT1/8	Ø8.7

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	9.5	13	60	4.5	7.5	5.5	20	3000	14.1	24.1	0.16	0.17	0.17	0.19	1.3
15	9.5	13	60	4.5	7.5	5.5	20	3000	12.3	18.3	0.13	0.08	0.08	0.15	1.3
15	9.5	13	60	4.5	7.5	5.5	20	3000	17.1	31.7	0.21	0.29	0.29	0.26	1.3
23	12.5	20	60	7	11	9	20	4000	31.5	52.1	0.56	0.56	0.56	0.69	3
23	12.5	20	60	7	11	9	20	4000	36.7	64.4	0.69	0.84	0.84	0.85	3
28	16	23	80	9	14	12	20	4000	42.8	65.4	0.85	0.77	0.77	1.04	4.25
28	16	23	80	9	14	12	20	4000	51.3	84.7	1.10	1.30	1.30	1.37	4.25
34	18	26	80	9	14	12	20	4000	59.5	89.1	1.42	1.28	1.28	1.56	6.02
34	18	26	80	9	14	12	20	4000	71.3	115.3	1.83	2.12	2.12	2.04	6.02
45	20.5	32	105	14	20	17	22.5	4000	79.2	116.3	2.48	1.90	1.90	2.80	9.77
45	20.5	32	105	14	20	17	22.5	4000	94.8	150.5	3.21	3.14	3.14	3.69	9.77
53	23.5	38	120	16	23	20	30	4000	127.3	181.8	4.81	2.97	2.97	4.42	13.72
53	23.5	38	120	16	23	20	30	4000	147.9	224.5	5.95	4.78	4.78	5.82	13.72

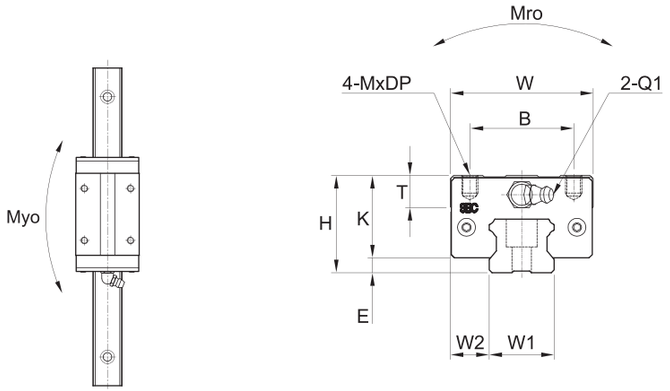
❶C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)
*Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。

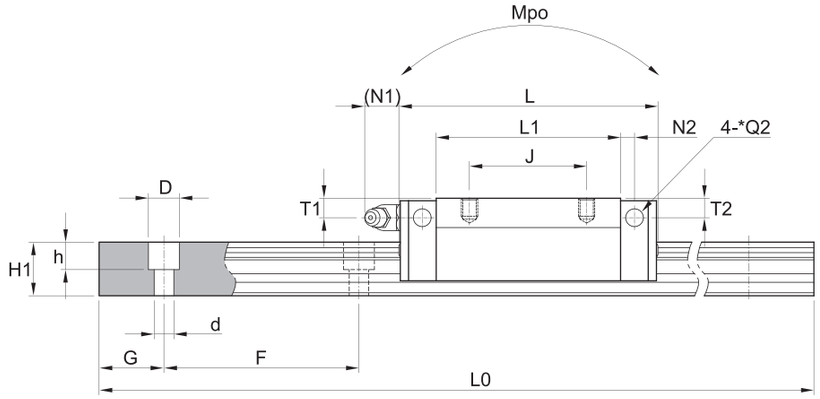
❷在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

SBI-CL/CLS/CLL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions													
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting						
					B	J	M	DP				T1	N1	T2	N2	Q1	*Q2	
SBI20 CL	28	44	78.8	4.6	32	32	M5	5	56.8	7.8	23.4	4.8	12	4	5	M6x0.75	Ø3.5	
SBI20 CLS	28	42	65.5	4.6	32	32	M5	5	43.2	7.8	23.4	4.8	12	4.3	5	M6x0.75	Ø3.5	
SBI20 CLL	28	44	96.4	4.6	32	50	M5	5	74.4	7.8	23.4	4.8	12	4	5	M6x0.75	Ø3.5	
SBI25 CL	33	48	92	5.5	35	35	M6	6	70	9	27.5	5.4	12	5.4	5	M6x0.75	Ø3.5	
SBI25 CLL	33	48	108	5.5	35	50	M6	6	86	9	27.5	5.4	12	5.4	5	M6x0.75	Ø3.5	

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
20	12	16.5	60	6	9.5	8.5	20	4000	22.2	38.2	0.36	0.33	0.33	0.39	2.2
20	11	16.5	60	6	9.5	8.5	20	4000	19.1	27.0	0.27	0.15	0.15	0.23	2.2
20	12	16.5	60	6	9.5	8.5	20	4000	27.9	50	0.47	0.56	0.56	0.52	2.2
23	12.5	20	60	7	11	9	20	4000	31.5	52.1	0.56	0.56	0.56	0.66	3
23	12.5	20	60	7	11	9	20	4000	36.7	64.4	0.69	0.84	0.84	0.82	3

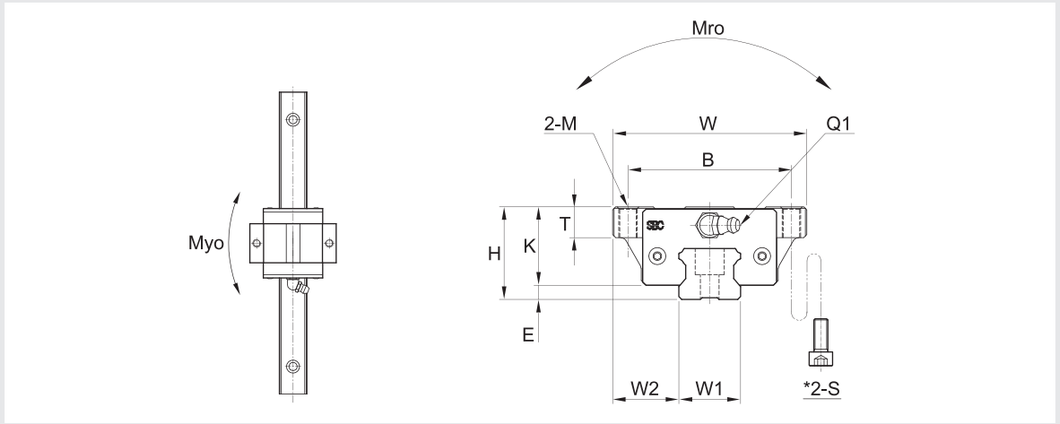
❶C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

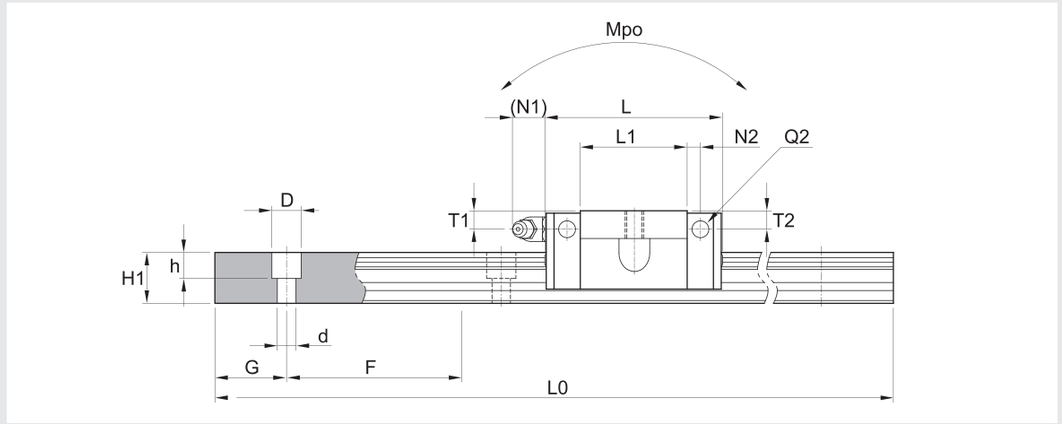
❷*Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

SBI-FV





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions											
					安装螺纹孔 Mounting tap hole			L1	T	K	注油部件 Grease fitting					
	H	W	L	E	B	M	*S				T1	N1	T2	N2	Q1	*Q2
SBI15 FV	24	47	39.9	3	38	M5	M4	21.3	8.8	21	4.5	5.5	3.8	3.4	M4x0.7	Ø3.5
SBI20 FV	28	63	49.1	4.5	53	M6	M5	27.1	8	23.4	4.8	12	4	5	M6x0.75	Ø3.5
SBI25 FV	33	70	52.6	5.5	57	M8	M6	30.6	9	27.5	5.4	12	5.4	5	M6x0.75	Ø3.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	16	13	60	4.5	7.5	5.5	20	3000	5.8	12.8	0.04	0.03	0.03	0.10	1.3
20	21.5	16.5	60	6	9.5	8.5	20	4000	9.4	20.2	0.12	0.10	0.10	0.24	2.2
23	23.5	20	60	7	11	9	20	4000	12.4	26.1	0.19	0.17	0.17	0.37	3

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

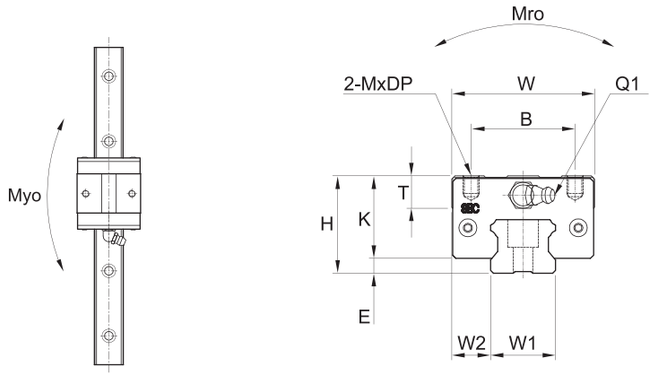
❷ *S：. 底部安装型滑块的螺栓尺寸。
*S: Bolt size for bottom mounting type of block.

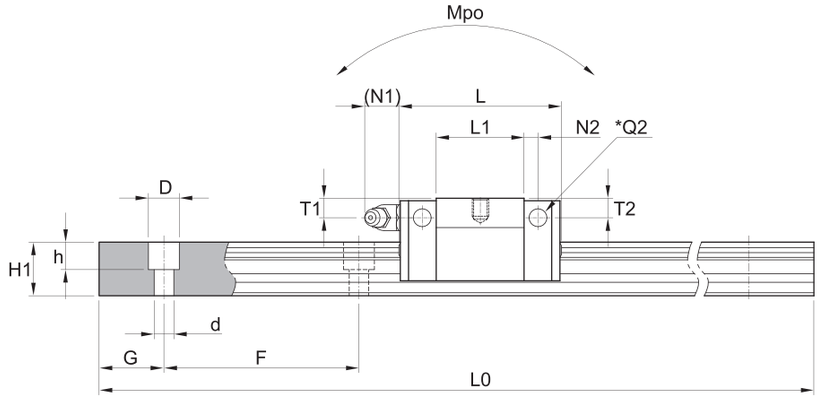
❸ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBI型高负载直线导轨系统
SBI High-load Linear Rail System

SBI-SV





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions											
	H	W	L	E	安装螺纹孔 Mounting tap hole			L1	T	K	注油部件 Grease fitting					
					B	M	DP				T1	N1	T2	N2	Q1	*Q2
SBI15 SV	24	34	39.9	3	26	M4	4	21.3	6	21	4.5	5.5	3.8	3.4	M4x0.7	Ø3.5
SBI20 SV	28	44	49.1	4.6	32	M5	5	27.1	7.8	23.4	4.8	12	4	5	M6x0.75	Ø3.5
SBI25 SV	33	48	52.6	5.5	35	M6	6	30.6	9	27.5	5.4	12	5.4	5	M6x0.75	Ø3.5

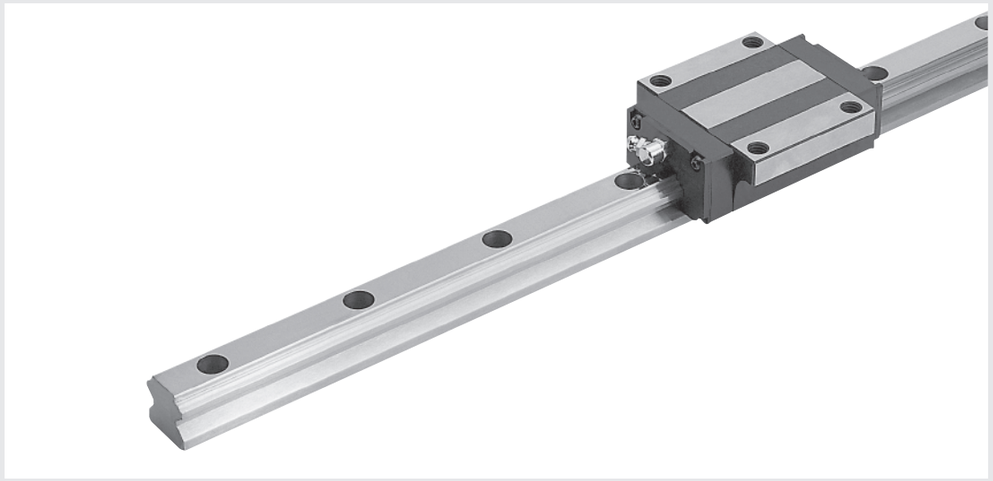
导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	9.5	13	60	4.5	7.5	5.5	20	3000	5.8	12.8	0.04	0.03	0.03	0.10	1.3
20	12	16.5	60	6	9.5	8.5	20	4000	9.4	20.2	0.12	0.10	0.10	0.24	2.2
23	12.5	20	60	7	11	9	20	4000	12.4	26.1	0.19	0.17	0.17	0.37	3

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

❷ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System



圆弧形沟槽
Circular arc groove

两点接触式圆弧槽结构。它能保持自动对准功能和平稳滚动性能。
Two pint contact structure of circular arc groove. It keeps the function of self-aligning and smooth rolling performance.

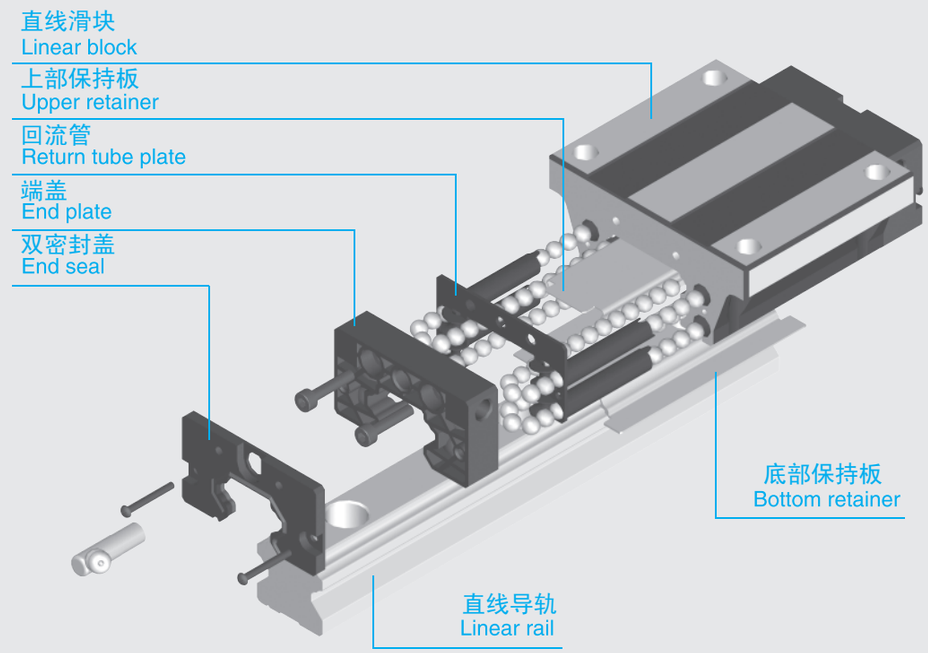
45° 接触角
45° angle of contact

四列圆弧槽接触滚珠呈45度角可在所有方向上提供一致的负载能力。
Four rows of circular arc groove contact balls at an angle of 45 degree. It provides the same load capacity in all directions.

DF结构
DF structure

尺寸相同
The same dimension

滑块结构
The Block Structure



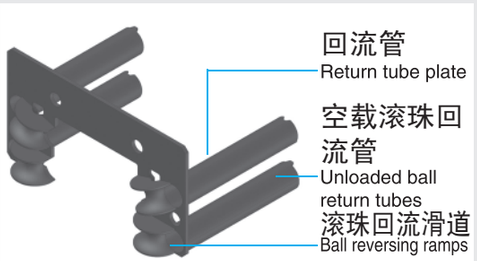
直线导轨 相同的导轨型材可用于每种类型的滑块（SBG、SBS、SPG和SPS型）。SBC型的所有导轨只采用高强度和经过热处理的特殊钢材制成。
Linear rail The same rail profile may be used for every type of block (SBG, SBS, SPG and SPS). SBC uses only high strength and heat-treated special steels in all rails.

双密封盖 新型双密封结构可提高防尘性和防颗粒污染性。
End seal New double lip structure which improves resistance to dust and particle contamination.

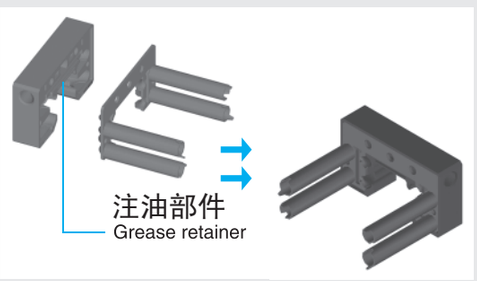
直线滑块 适用于SBG、SBS、SPG 和SPS型。所有滑块都能尺寸互换。
Linear block SBG, SBS, SPG and SPS types are available. All blocks are dimensionally interchangeable.

直线导轨系统
Linear Rail System

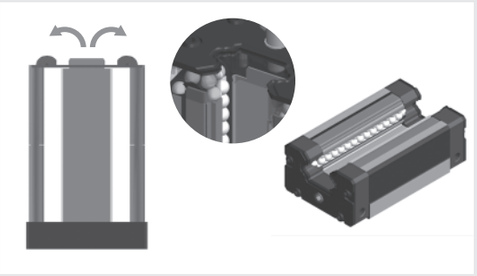
SBG型标准直线导轨系统
SBG Standard Linear Rail System



（回流管结构）
(Structure of return tube plate)



（密闭端盖可减少润滑脂流失）
(Close fitting end-plate reduces grease loss)



（卡装）
(Snap assembled)

独立组件 回流管与回流板结构在滚珠回流通道内插入模塑管可平稳控制滚珠，使润滑剂自由流动，从而能使润滑剂保持清洁，同时又能防止金属之间的滑动接触造成回流困难。

Single component Return tube & reversing plate structure Inserting a molded tube into the ball return paths keeps lubricant cleaner by providing better loose ball control and free lubricant flow while preventing metal to metal skidding contact with what is normally an imprecise return path wall.

※ 回流管适用于SBG(S)、SPG(S) 20~35
Return tube plate is available for SBG(S), SPG(S) 20~35.

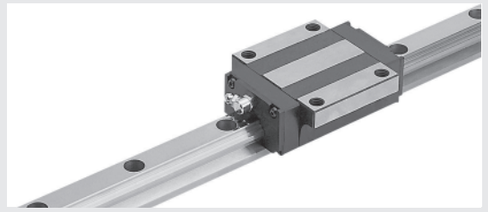
保持板 滚珠保持板以卡装方式固定在内部结构和端盖上，没有使用定位螺钉。保持板能根据负载方向自动对准，并引导滚珠平稳流入负载区。这种功能消除了滚珠摩擦和过热预载，从而能确保运行更平稳，行程寿命更长。新型保持板采用不锈钢（SUS304）制成，而且具有一流的耐腐蚀性。底部保持板采用了一体式结构，并安装了橡胶密封以防止底部污染。

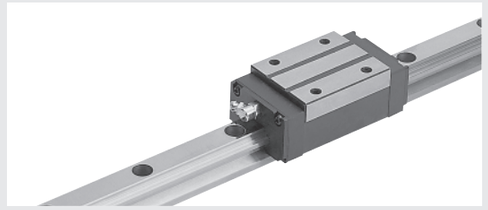
Retainer Ball retainers are snap assembled to the internal body and end-plate without fixed position screws. The retainers can self align according to load orientation and direct the balls smoothly into the load zone. This function eliminates ball skid and hot zone pre-load creating smoother running and longer life. These new retainers are made of stainless steel (SUS304) and are corrosion resistant.

Bottom retainer is one body type with rubber seal to prevent contamination from bottom.

※ 底部密封不适用于SBG(S)、SPG(S). 的尺寸15
Bottom seal is not available for size 15 of SBG(S), SPG(S).

SBG型
SBG type





SBG 是SBC型标准直线滑块，具有FL、FLL、SL、SLL型。
SBG is SBC standard linear block and FL, FLL, SL, SLL are available.

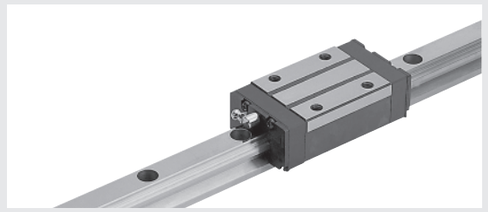
SBG-FL/FLL

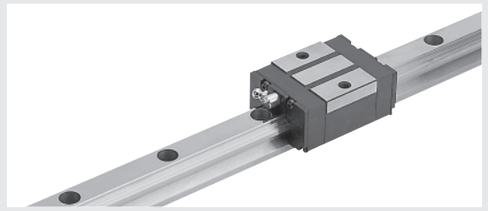
-法兰型 Flange type
-尺寸 Size 15~65

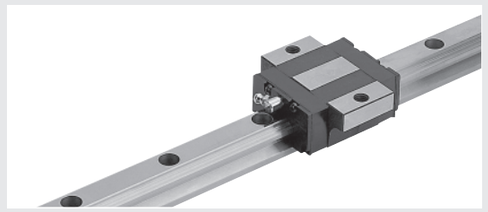
SBG-SL/SLL

-超薄型 Slim type
-尺寸 Size 15~65

SBS type







SBS型使用了与SBG型相同的导轨，而且高度小于SBG-SL型的高度。
SBS type use same rail as SBG rail and the height is lower than SBG-SL type.

SBS-SL/SLL

-超薄型 Slim type
-尺寸 Size 15~45

SBS-HL/HLL

–SBS-SL（高度高于SBS-SL/SLL型）
-SBS-SL (Height is higher than SBS-SL/SLL type)
-尺寸 Size 25

SBS-FV

–长度更短的法兰型
-Flange type with shorter length
-尺寸 Size 15~25

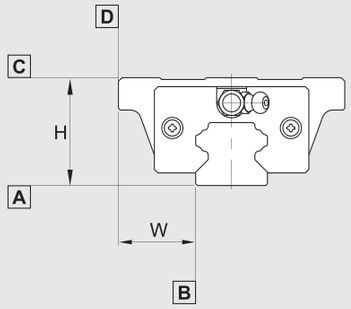
SBS-SV

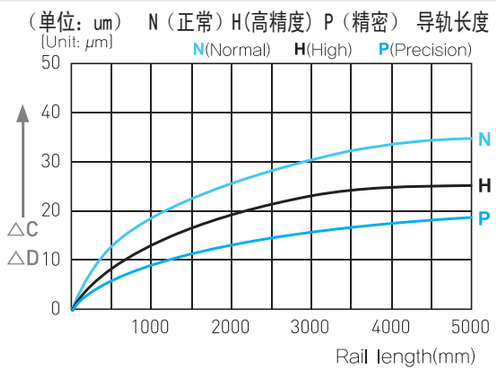
–长度更短的超薄型
-Slim type with shorter length
-尺寸 Size 15~25

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

精度
Accuracy





（单位Unit : mm）

项目 Item	N	H	P
高度H的公差 Tolerance for the height **H**	±0.1	±0.04	±0.02
导轨-滑块横向距离W2的公差 Tolerance for the rail-to-block lateral distance **W2**	±0.1	±0.04	±0.02
滑块之间的高度H差值的公差 Tolerance for the height **H** difference among blocks	0.03	0.015	0.007
滑块之间的导轨-滑块横向距离W2的公差 Tolerance for rail-to-block lateral distance **W2** distance among blocks	0.03	0.015	0.007
表面C与表面A的运动平行度 Running parallelism of surface C with surface A	△C		
表面D与表面B的运动平行度 Running parallelism of surface D with surface B	△D		

- N：正常 N : Normal
- H：高精度 H : High
- P：精密 P : Precision

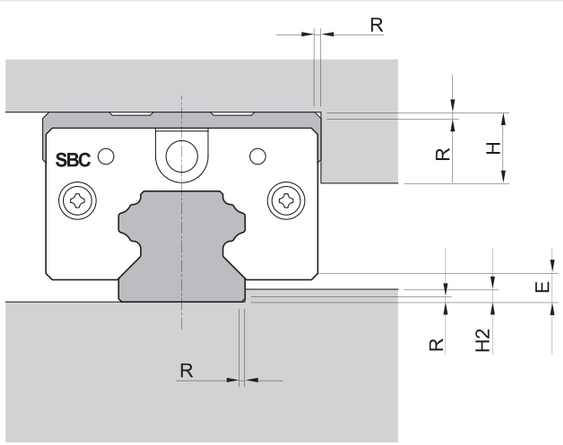
预载 Preload

参考 Reference	预载量 Volume of preload
K1 (正常 Normal)	最大 Max. 0.02C
K2 (轻 Light)	0.04 ~ 0.06C
K3 (重 Heavy)	0.08 ~ 0.10C

- C(kN)：基本额定动载荷
  C(kN) : Basic dynamic load rating

※ “K3”预载不适用于SBG/SBS 15型
“K3” Preload is not available for SBG, SBS 15 type

肩高与圆角半径R
Shoulder height and fillet radius R



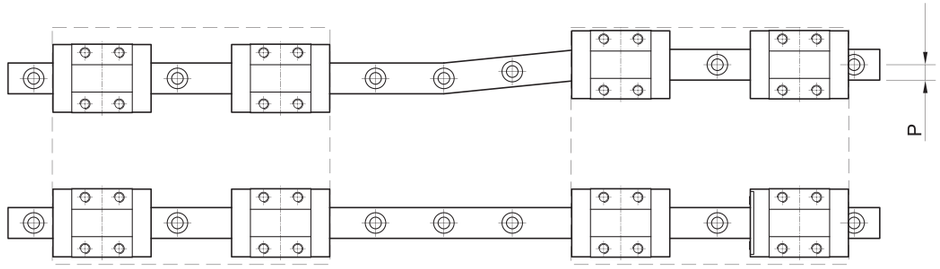
（单位Unit : mm）

型号 Model number	圆角半径R Fillet radius R	肩高H1 Shoulders height H1	肩高H2 Shoulders height H2	E
15	0.5	4	2	3
20	0.5	5	2.5	3.5
25	1.0	5	3.5	6.5
30	1.0	5	4.5	7
35	1.0	6	6	7.5
45	1.0	8	8	10
55	1.5	8	8	13
65	1.5	10	10	17.5

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

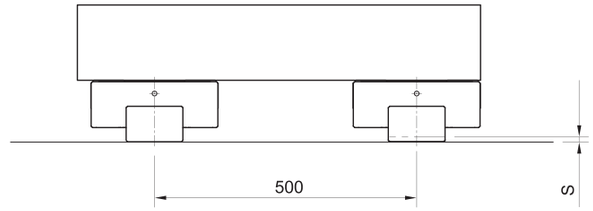
容许平行度公差（P）
Permissible tolerance (P) of parallelism



（单位Unit : mm）

型号 Model size	K1	K2	K3
15	0.025	0.018	-
20	0.025	0.02	0.018
25	0.03	0.022	0.02
30	0.04	0.03	0.027
35	0.05	0.035	0.03
45	0.06	0.04	0.035
55	0.07	0.05	0.045
65	0.08	0.06	0.055

双水平偏移的容许公差（S）
Permissible tolerance (S) of two level offset



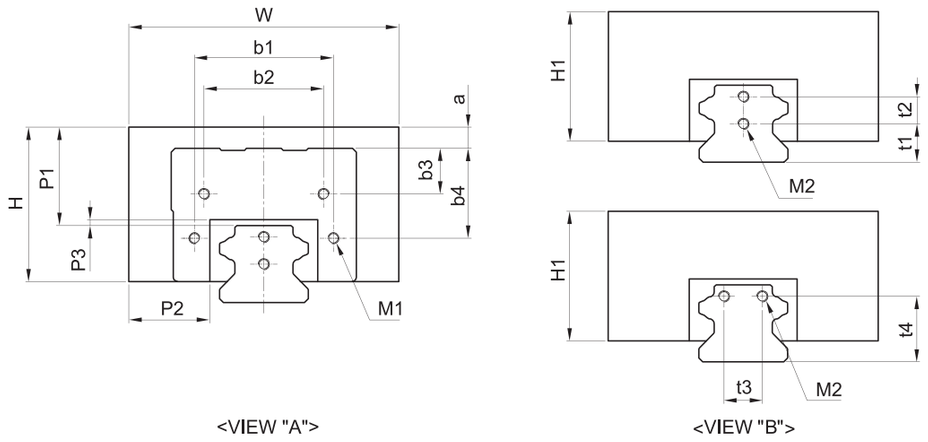
（单位Unit : mm）

型号 Model size	K1	K2	K3
15	0.13	0.085	-
20	0.13	0.085	0.05
25	0.13	0.085	0.07
30	0.17	0.11	0.09
35	0.21	0.15	0.12
45	0.25	0.17	0.14
55	0.3	0.21	0.17
65	0.35	0.25	0.2

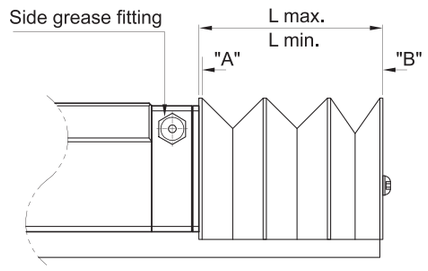
直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

SH型防尘罩
SH Bellows



<VIEW "A"> <VIEW "B">



[计算防尘罩长度]
[Calculation of bellows length]

$$A = \frac{L_{max}}{L_{min}}$$

- L_{max} : 延伸长度 Extended length (mm)
- L_{min} : 收缩长度 Collapsed length (mm)

	L_{min}	L_{max}
*SBG 15	行程 Stroke ÷ 4	L_{min} + Stroke
*SBG 20	行程 Stroke ÷ 5	
*SBG 25~65	行程 Stroke ÷ 6	

* SBG, SBS, SPG, SPS型的尺寸相同。
Same dimensions for SBG, SBS, SPG, SPS

(单位Unit : mm)

型号 Model number	应用类型 Applicable type	W	H	H1	P1	P2	P3	a						b1	b2
								SBG		SBS					
								FL	SL	SL	FV	SV	HL		
SH15	SBG(S)15	55	27	27	15	17	1.5	6	2	6	6	6	-	-	26
SH20	SBG(S)20	66	32	32	18	19	3	5.5	5.5	7.5	7.5	7.5	-	33	24
SH25	SBG(S)25	78	38	38	22.7	23.5	3.7	8.5	4.5	11.5	11.5	11.5	8.5	40.8	21
SH30	SBG(S)30	84	42	42	24	24	4	7	4	7	-	-	-	53	37
SH35	SBG(S)35	88	43	43	21.5	22	4	2.5	-4.5	2.5	-	-	-	62	62
SH45	SBG(S)45	100	50	55	22	22.5	4	0	-10	0	-	-	-	76	57
SH55	SBG55	108	55.5	55.5	23.5	22.5	4.5	-1.5	-11.5	-	-	-	-	67	62
SH65	SBG65	132	71.5	71.5	30.5	28.5	6	-1	-1	-	-	-	-	92	84

b3						b4						t1	t2	t3	t4	螺栓长度 M x Bolt length			A 延伸率 (Extended ratio)
SBG		SBS				SBG		SBS								M1(滑块) M1(Block)	M1(滑块) M2(Block)	M1(滑块) M3(Rail)	
FL	SL	SL	FV	SV	HL	FL	SL	SL	FV	SV	HL								
10	14	10	10	10	-	-	-	-	-	-	-	9	-	-	-	-	M2X8	M4X8	5
7	7	5	5	5	-	14	14	12	12	12	-	6.5	8	-	-	M2X8	M2X8	M3X6	6
8.2	12.2	5.2	5.2	5.2	8.2	20.2	24.2	17.2	17.2	17.2	20.2	10	8	-	-	M2X8	M2X8	M3X6	7
3.5	6.5	3.5	-	-	-	32.5	35.5	32.5	-	-	-	11	10	-	-	M3X8	M3X8	M4X8	
3.5	10.5	3.5	-	-	-	37.5	44.5	37.5	-	-	-	-	-	14	14	M3X8	M3X8	M4X8	
5	15	5	-	-	-	31.5	41.5	31.5	-	-	-	-	-	20	29	M5X10	M3X8	M5X10	
6.3	16.3	-	-	-	-	36.5	46.5	-	-	-	-	-	-	26	35	M5X10	M3X8	M5X10	
6	6	-	-	-	-	67.5	67.5	-	-	-	-	-	-	32	42	M3X8	M3X8	M6X12	

*SBG、SBS、SPG与SPS型的尺寸相同。
Same dimension for SBG, SBS, SPG and SPS

*“a、b3和b4”栏内的尺寸常用于FL=FLL、SL=SLL和HL=HLL.
The dimension in column “a, b3 and b4” are common for FL=FLL, SL=SLL and HL=HLL.

*如果使用了SH型防尘罩，需要使用导轨端部安装孔。
If SH bellows are applying, rail end mounting holes are necessary.

*在选择SH型防尘罩时，请选择用于润滑的侧面注油部件。
When you select SH bellows, please select the side grease fitting for lubrication.

*请联系SBC公司了解更多信息。
Please contact SBC for more information.

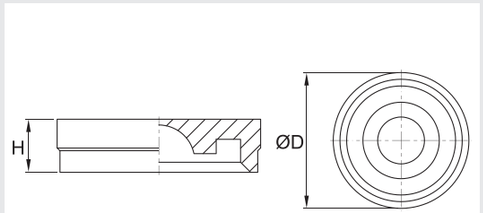
订购实例
Ordering example : **SH25 – 70 / 420**
❶ ❷ ❸

❶ 型号 Model number
❷ 收缩长度 Collapsed length (mm)
❸ 延伸长度 Extended length (mm)

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

RC型孔帽
RC Cap

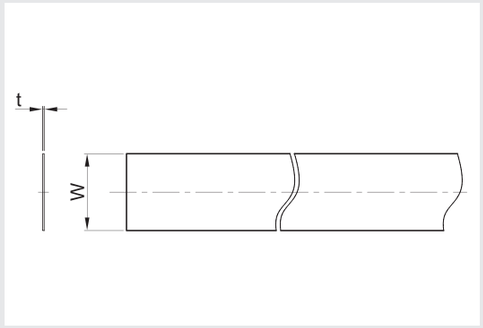


(单位Unit : mm)

型号 Model	D±0.1	H±0.1
RC 15	7.6	1.3
RC 20	9.6	3.5
RC 25	11.1	2.8
*RC 30	14.2	3.7
RC 45	20.2	4.7
RC 55	23.2	6
RC 65	26.2	6

- RC 30 用于SBG 30、35导轨
  RC 30 is used for SBG 30, 35 rail.
- SBI、SBG 型使用相同的RC型孔帽
  SBI, SBG type use same RC cap.

ST型防尘带
ST Tape



(单位Unit : mm)

型号 Model	W	t
ST 15	8.3	0.1
ST 20	11	0.1
ST 25	13	0.1
ST 30	17	0.1
ST 35	21	0.1
ST 45	30	0.1
ST 55	34	0.1
ST 65	40	0.1

订购实例：
Ordering example : **ST15 - 1000L**
❶ ❷

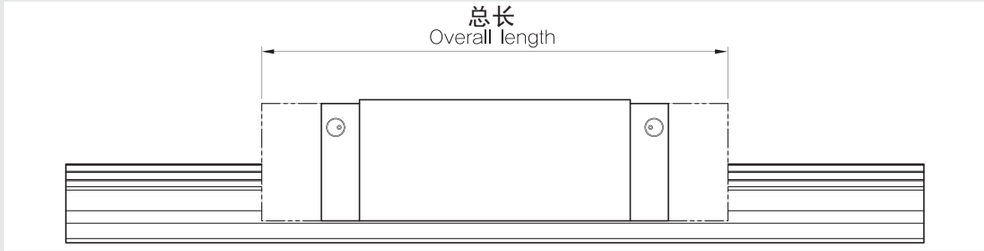
❶ 型号
Model number

❷ 长度
Length

- SBG、SBS、SPG、SPS型使用长度相等的导轨
  Equivalent rail is used for SBG, SBS, SPG, SPS

密封与MF润滑器
Seal and MF container

密封与MF润滑器
[Method and overall length with each seal]



- E：双密封盖 S：刮片 F：MF（自动润滑器）
  E : End seal S : Scraper F : MF (Self lubricant)

(单位Unit : mm)

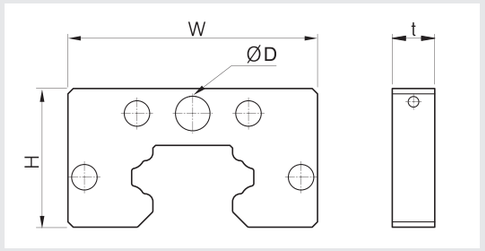
附加密封 Additional seal		标准 Standard	DD	ZZ	KK	MF	MFDD	MFZZ	MFKK
密封标识 Indication of seal		E	E+E	E+S	E+E+S	F+E	F+E+E	F+E+S	F+E+E+S
加密封后的总长 Overall length with seal	15	60.8	66.8	65.2	71.2	-	-	-	-
	15V	44.9	50.9	49.3	55.3	-	-	-	-
	20	77.2	83.6	82.6	89	93.2	99.6	98.6	105
	20L	93.2	99.6	98.6	105	109.2	115.6	114.6	121
	20V	54.2	60.6	59.6	66	70.2	76.6	75.6	82
	25	86.9	93.3	92.7	99.1	102.9	109.3	108.7	115.1
	25L	106.4	112.8	112.2	118.6	122.4	128.8	128.2	134.6
	25V	62.6	69	68.4	74.8	78.6	85	84.4	90.8
	30	100	104.6	105.4	110	116	120.6	121.4	126
	30L	122.5	127.1	127.9	132.5	138.5	143.1	143.9	148.5
	35	112.6	117.2	117.4	122	128.6	133.2	133.4	138
	35L	138.1	142.7	142.9	147.5	154.1	158.7	158.9	163.5
	45	140.3	145.1	145.2	150	156.3	161.1	161.2	166
	45L	172.3	177.1	177.2	182	188.3	193.1	193.2	198
	55	166.8	172.8	170.4	176.4	-	-	-	-
	55L	204.8	210.8	208.4	214.4	-	-	-	-
	65	195.2	201.2	202.4	208.4	-	-	-	-
	65L	255.2	261.2	262.4	268.4	-	-	-	-

- SBG(S)型的底部密封能与底部保持板集成 (SBG/SBS15型除外)
  Bottom seal of SBG(S) type is integrated with bottom retainer. (Except SBG, SBS15)
- 如果滑块安装了MF润滑器，就不再提供注油部件。如果您需要为滑块注油，请订购侧面注油部件。
  If block is assembled with MF container, the grease fitting is not supplied. If you would like to feed the grease to the block, please order side grease fitting type.

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

[MF润滑器的尺寸]
[Dimension of MF container]



(单位Unit : mm)

参考 Reference	型号 Model	W	t	H	D
MF	20	43	8	24	6.5
	25	47	8	26.1	6.5
	30	59	8	34.5	6.5
	35	68	8	40	6.5
	45	84	8	49	8.5

※ 润滑器适用于SBG(S)、SPG(S) 20~45
Container is available for SBG(S), SPG(S) 20~45

[密封阻力]
[Seal resistance]

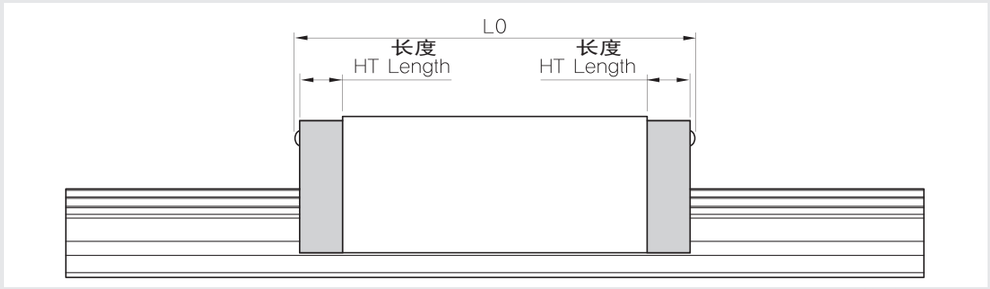
未用润滑脂润滑时，每个滑块的SBI标准型的密封阻力最大值。
For the maximum value of seal resistance of SBG standard type per block, in which grease is not applied.

※ 刮片没有阻力，因为它不接触滑轨。
Scraper has no resistance because it is not contacting rail.

(单位Unit : N)

型号 Model	双密封盖 End seal	MF
SBG 15	1.96	-
SBG 20	2.58	1.61
SBG 25	3.92	4.21
SBG 30	7.84	6.37
SBG 35	11.76	7.06
SBG 45	19.6	7.35
SBG 55	19.6	-
SBG 65	34.3	-

HT型高温端盖
HT high temperature end plate



(单位Unit : mm)

参考 Reference	HT长度 HT Length	总长 Overall length					
		应用型号 Applied model	L0	应用型号 Applied model	L0	应用型号 Applied model	L0
HT 15	8	SBG(S) 15	54.8	-	-	SBS 15V	38.9
HT 20	10	SBG(S) 20	70.8	SBG(S) 20L	86.8	SBS 20V	47.8
HT 25	10.5	SBG(S) 25	83.9	SBG(S) 25L	103.4	SBS 25V	59.6
HT 30	11.5	SBG(S) 30	98.4	SBG(S) 30L	120.9	-	-
HT 35	12	SBG(S) 35	110.4	SBG(S) 35L	135.9	-	-
HT 45	16	SBG(S) 45	138	SBG(S) 45L	170	-	-
HT 55	18	SBG(S) 55	162	SBG(S) 55L	200	-	-
HT 65	18	SBG(S) 65	194	SBG(S) 65L	254	-	-

订购实例：
Ordering example :

SBG25FL - HT - 2 - K1 - 800 - N
❶ ❷ ❸ ❹ ❺ ❻

❶ 型号 Model
❷ 高温端盖 High temperature end plate
❸ 滑块数量 Block quantity
❹预载 Preload
❺导轨长度 Rail length
❻精度 Accuracy

※ 高温滑块内的所有塑料组件均换成钢制或铝制组件。
All plastic components are replace with steel or aluminum in the High Temperature Blocks.
※ 侧面注油部件不适用于高温端盖。
Side grease fitting is not available for high temperature end plates

润滑脂与注油部件规范
Grease and nipple specification

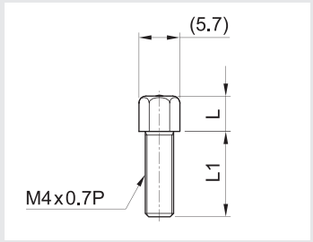
[润滑脂]
[Grease]

SBG型可根据运行条件使用两类润滑脂。
SBG uses two types of grease according to working conditions.
请参见润滑脂的技术数据了解详情。
For details, please see the technical data for grease.

直线导轨系统
Linear Rail System

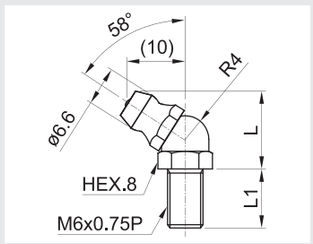
SBG型标准直线导轨系统
SBG Standard Linear Rail System

(1) 标准注油部件（前部注油部件）
Standard grease fitting (Front grease fitting)



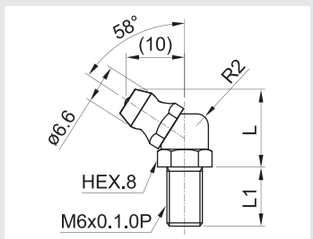
（单位Unit : mm）

规范 Specification		M4x0.7P		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBG(S) 15	1N	无 None	7	5.5
	1D	DD, ZZ	5	9
	1Z	KK	5	11



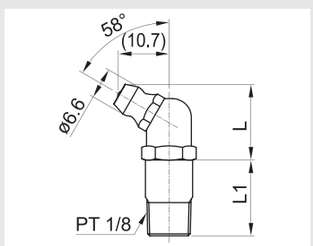
（单位Unit : mm）

规范 Specification		M6x0.75P, Asia type		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBG(S) 20~35	GA2N	无 None	15	9.5
	GA2D	DD, ZZ	15	12.5
	GA2Z	KK	15	15.5



（单位Unit : mm）

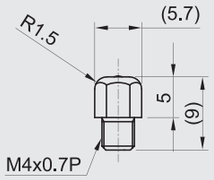
规范 Specification		M6x1.0P, Europe type		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBG(S) 20~35	GE2N	无 None	15	9.5
	GE2D	DD, ZZ	15	12.5
	GE2Z	KK	15	15.5



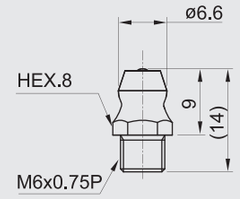
（单位Unit : mm）

规范 Specification		PT 1/8		
应用型号 Applied model	注油部件型号 Grease fitting model	符号 Symbol	L	L1
SBG(S) 45~65	4N	无 None	17	12
	4D	DD, KK, ZZ	17	16

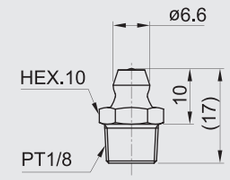
(2) Side grease fitting



规范 Specification	M4x0.7P
应用型号 Applied model	SBG(S) 15
注油部件型号 Grease fitting model	S1N

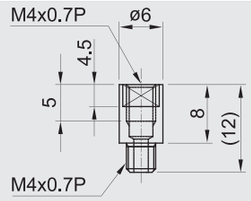


规范 Specification	M6x0.75P
应用型号 Applied model	SBG(S) 20, 25, 30, 35
注油部件型号 Grease fitting model	S3N

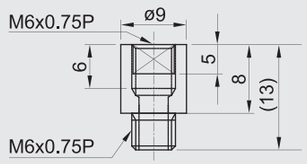


规范 Specification	PT1/8
应用型号 Applied model	SBG(S) 45, 55, 65
注油部件型号 Grease fitting model	S4N

(3) FS型侧面注油部件接头（仅适用于FL/FLL法兰型） ※请参见ⓐ/36页了解注油部件接头的安装方法。
FS nipple connector for side grease fitting (FL. FLL flange type only) ※Please see the page ⓐ/36 for assembling the nipple connector.



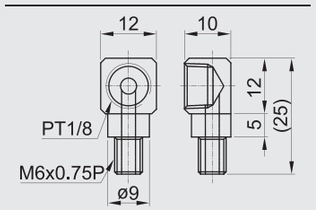
规范 Specification	M4x0.7P
应用型号 Applied model	SBG(S) 15
注油部件型号 Grease fitting model	S1C



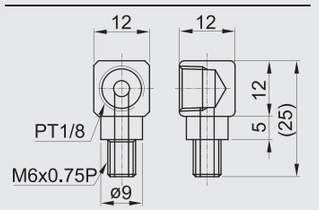
规范 Specification	M6x0.75P
应用型号 Applied model	SBG(S) 20, 25, 30, 35
注油部件型号 Grease fitting model	S4C

* 对于尺寸30~35，可采用两个FS注油部件接头
For size 30~35, two pieces of FS nipple connector are applied.

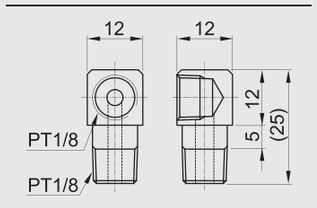
(4) 铜管
Copper pipe



输入尺寸 Input size	PT1/8
输出尺寸 Output size	M6x0.75P
应用型号 Applied model	SBG(S) 20
注油部件型号 Grease fitting model	SB02



输入尺寸 Input size	PT1/8
输出尺寸 Output size	M6x0.75P
应用型号 Applied model	SBG(S) 25, 30, 35
注油部件型号 Grease fitting model	SB01



输入尺寸 Input size	PT1/8
输出尺寸 Output size	PT1/8
应用型号 Applied model	SBG(S) 45, 55, 65
注油部件型号 Grease fitting model	SB21

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

订购实例
Ordering example

SBG20 FL – N – MF – ZZ – K1
[1] [2] [3] [4] [5] [6]

[1] 型号：SBG、SBS、SPG、SPS
Model : SBG, SBS, SPG, SPS
[2] 滑块类型：FL、FLL、SL、SLL、HL、HLL、FV、SV
Block type : FL, FLL, SL. SLL, HL, HLL, FV, SV
[3] 注油部件位置：无符号（前部），N（侧面）
Position of grease fitting : None (front), N (side)
[4] 容器：无符号（标准），DF（高级防尘），MF（自动润滑）
Container : No symbol (standard), DF (high dust protection), MF (self lubricant)
[5] 密封：无符号（标准），DD、ZZ、KK
Seal : No symbol (standard), DD, ZZ, KK
[6] 预载：K1、K2、K3
Preload : K1, K2, K3

※“K3”预载不适用于SBG、SBS 15型
“K3” Preload is not available for SBG, SBS 15 type

[导轨订购实例]
[Ordering example for rail]

SBG20 – 1000L – B
[1] [2] [3]

[1] 型号：SBG
Model : SBG
[2] 导轨长度
Rail length
[3] 底部安装：无符号（标准），B（底部安装导轨）
Bottom mounting : No symbol (standard), B (bottom mounting rail)

※只有订购导轨N级精度才适用。
If only rail is ordered, N grade is available.
※仅用于订购导轨，请注明SBG型，因为BG、SBS、SPG、SPS型使用了相同的导轨。
An order for rail only, please mark it as SBG since same rail is used for SBG, SBS, SPG, SPS

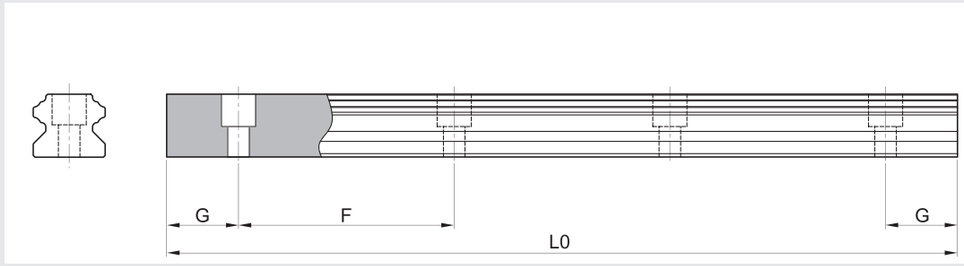
[订购导轨与滑块组合]
[Ordering for assembled rail and block]

SBG20 FL – N – MF – ZZ – 2 – K1 – 800 – N – R – B – II
[1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12]

[1] 型号：SBG、SBS、SPG、SPS
Model : SBG, SBS, SPG, SPS
[2] 滑块类型：FL、FLL、FV、SL、SLL、SV、HL、HLL
Block type : FL, FLL, FV, SL. SLL, SV, HL, HLL
[3] 注油部件位置：无符号（前部），N（侧面）
Position of grease fitting : None (front), N (side)
[4] 容器：无符号（标准），DF（高级防尘），MF（自动润滑）
Container : No symbol (standard), DF (high dust protection), MF (self lubricant
[5] 密封：无符号（标准），DD、ZZ、KK
Seal : No symbol (standard), DD, ZZ, KK
[6] 导轨上的滑块数量
Block quantity on rail
[7] 预载：K1、K2、K3
Preload : K1, K2 ,K3
[8] 导轨长度
Rail length
[9] 精度：N、H、P
Accuracy : N, H, P
[10] 表面处理
Surface treatment
[11]（B）底部安装导轨：无符号（标准）
(B) Bottom mounting rail : No symbol (standard)
[12] 导轨：每个轴的导轨数量，1=I，2=II... 4=IV等
Rail : number of rails per axis, 1=I, 2=II... 4=IV etc.

※如需更高的精度和刚度，建议订购滑块和导轨组合。
We recommend block and rail assembled to be ordered where high-precision and high-rigidity are required.
※如需表面处理，请根据每种表面处理符号正确标记。
For surface treatment, please mark according to each surface treatment symbol.
※如需特殊尺寸G，请在订购时正确标记。
If special G dimension is required, please mark when you place an order.
※如需高温运行条件，请联系SBC公司。
Please contact SBC for high temperature order.
※K3”预载不适用于SBI 15型。
“K3” Preload is not available for SBG, SBS 15 type

SBG导轨的标准和最大长度
Standard and Max. Length of SBG rail



(单位Unit : mm)

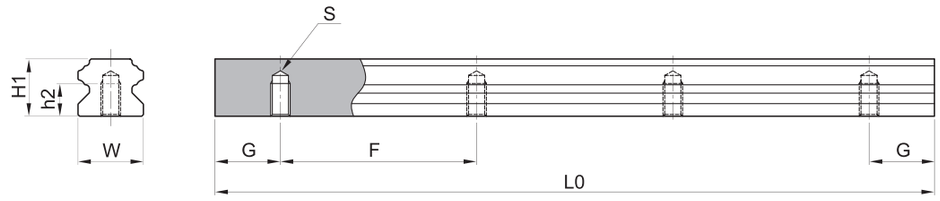
型号 Model number	SBG15	SBG20	SBG25	SBG30	SBG35	SBG45	SBG55	SBG65
标准长度 Standard length	160	220	220	280	280	570	780	1270
	220	280	280	440	440	885	900	1570
	280	240	340	600	600	1095	1020	2020
	340	460	460	760	760	1200	1140	2470
	460	640	640	1000	1000	1410	1260	2620
	640	820	820	1240	1240	1620	1380	2920
	820	1000	1000	1480	1480	1830	1500	3070
	1000	1240	1240	1640	1640	2040	1620	-
	1240	1480	1480	1800	1800	2250	1740	-
	1480	1600	1600	2040	2040	2460	1860	-
	1600	1840	1840	2200	2200	2985	1980	-
	1960	2080	2080	2520	2520	3510	2220	-
	2200	2200	2200	2840	2840	-	2580	-
	2500	2500	2500	3000	3000	-	2940	-
	2860	2960	2980	3480	3480	-	3540	-
	-	3520	3520	-	-	-	-	-
	-	4000	4000	-	-	-	-	-
F	60	60	60	80	80	105	120	150
G	20	20	20	20	20	22.5	30	35
L0（最大长度 L0(Max length)	3,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000

* SBG(S)、SPG(S)的导轨相同。
  The rail for SBG(S), SPG(S) is identical.
* 如果最大长度超过该尺寸，可提供对接接头。
  If the maximum length exceeds this size, butt joints can be supplied.
* 请参见安全设计页面，了解有关对接接头的更多信息。
  For more information about butt jointing, please refer to the page of safety design.
* 如果G不是标准型，请在订单中注明。
  If the G is not standard, please indicate it in the order sheet.

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

底部安装导轨（SBG-B型）
Bottom mounting rail (SBG-B type)

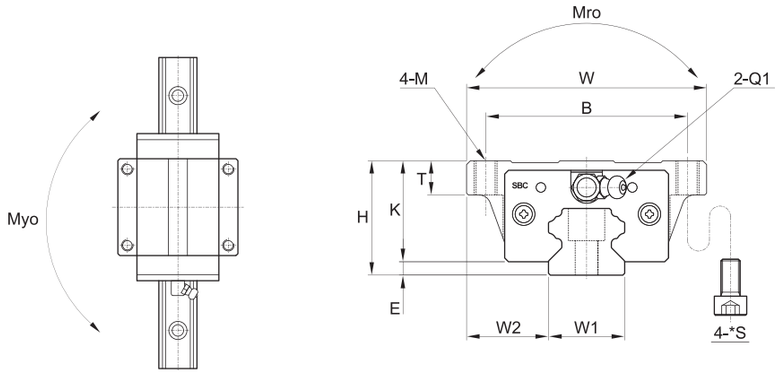


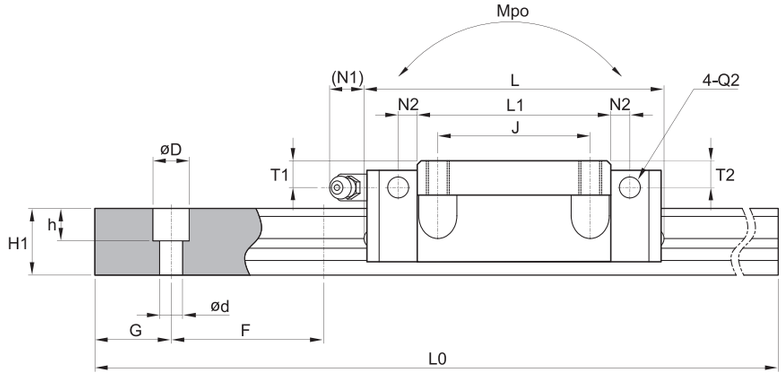
(单位Unit : mm)

型号 Model number	W1	H1	S	h2	G	F	L0（最大长度）(Max length)	重量 Weight (kg/m)
SBG 15-B	15	15	M5x0.8	8	20	60	3,000	1.53
SBG 20-B	20	17.5	M6	10	20	60	4,000	2.28
SBG 25-B	23	21.8	M6	12	20	60	4,000	3.21
SBG 30-B	28	25	M8	15	20	80	4,000	4.58
SBG 35-B	34	29	M8	17	20	80	4,000	6.62
SBG 45-B	45	38	M12	24	22.5	105	4,000	11.43

* SBG(S)、SPG(S)型的导轨相同。
  The rail for SBG(S), SPG(S) is identical
* 如果最大长度超过该尺寸，请联系SBC公司。
  If the maximum length exceeds this size, please contact SBC.

SBG-FL/FLL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions													
					安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting						
	H	W	L	E	B	J	M	*S				T1	N1	T2	N2	Q1	*Q2	
SBG15 FL	24	47	60.8	3	38	30	M5	M4	38.8	7.2	21	4	5	5.5	4.5	M4x0.7	Ø3.5	
SBG20 FL	30	63	77.2	3.5	53	40	M6	M5	50.8	9	26.5	7	9.8	12	5	M6x0.75	Ø5.5	
SBG20 FLL	30	63	93.2	3.5	53	40	M6	M5	66.8	9	26.5	7	9.8	12	5	M6x0.75	Ø5.5	
SBG25 FL	36	70	86.9	6.5	57	45	M8	M6	59.5	10	29.5	8.2	9.8	12	5.5	M6x0.75	Ø5.5	
SBG25 FLL	36	70	106.4	6.5	57	45	M8	M6	79	10	29.5	8.2	9.8	12	5.5	M6x0.75	Ø5.5	
SBG30 FL	42	90	100	7	72	52	M10	M8	70.4	12	35	8.5	10.7	12	5.5	M6x0.75	Ø5.5	
SBG30 FLL	42	90	122.5	7	72	52	M10	M8	92.9	12	35	8.5	10.7	12	5.5	M6x0.75	Ø5.5	
SBG35 FL	48	100	112.6	7.5	82	62	M10	M8	80.4	13	40.5	8	10.7	12	6	M6x0.75	Ø5.5	
SBG35 FLL	48	100	138.1	7.5	82	62	M10	M8	105.9	13	40.5	8	10.7	12	6	M6x0.75	Ø5.5	
SBG45 FL	60	120	140.4	10	100	80	M12	M10	98	15	50	10	11	16.5	8	PT1/8	Ø8.5	
SBG45 FLL	60	120	172.4	10	100	80	M12	M10	130	15	50	10	11	16.5	8	PT1/8	Ø8.5	
SBG55 FL	70	140	164.8	13	116	95	M14	M12	118	17	57	12	11	16.5	10	PT1/8	Ø8.5	
SBG55 FLL	70	140	202.8	13	116	95	M14	M12	156	17	57	12	11	16.5	10	PT1/8	Ø8.5	
SBG65 FL	90	170	195.2	17.5	142	110	M16	M14	147	23	72.5	15	11	16.5	10	PT1/8	Ø8.5	
SBG65 FLL	90	170	255.2	17.5	142	110	M16	M14	207	23	72.5	15	11	16.5	10	PT1/8	Ø8.5	

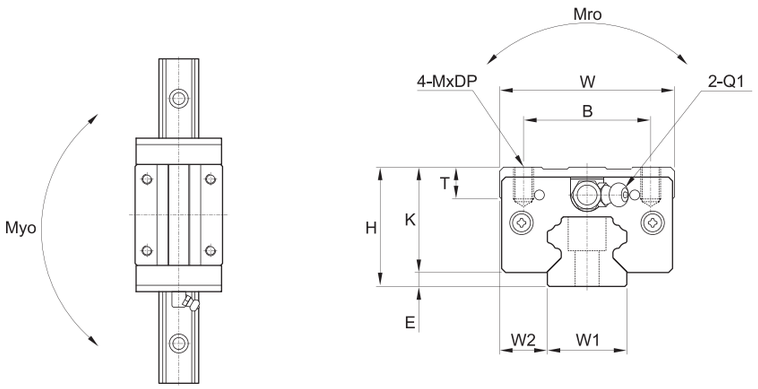
导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail Lo	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	16	15	60	4.5	7.5	5.3	20	3000	8.33	13.4	0.07	0.05	0.05	0.18	1.45
20	21.5	17.5	60	6	9.5	8.5	20	4000	14.2	25	0.22	0.18	0.18	0.42	2.2
20	21.5	17.5	60	6	9.5	8.5	20	4000	16.9	36.5	0.28	0.31	0.31	0.54	2.2
23	23.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.62	3.1
23	23.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	0.78	3.1
28	31	25	80	9	14	12	20	4000	29.2	53.8	0.59	0.49	0.48	1.1	4.45
28	31	25	80	9	14	12	20	4000	35.3	67.9	0.74	0.79	0.78	1.44	4.45
34	33	29	80	9	14	12	20	4000	38.8	68.6	0.94	0.74	0.72	1.57	6.4
34	33	29	80	9	14	12	20	4000	46	90.4	1.24	1.3	1.28	2.14	6.4
45	37.5	38	105	14	20	17	22.5	4000	61.6	110.6	1.98	1.56	1.54	2.96	11.25
45	37.5	38	105	14	20	17	22.5	4000	75.5	138.5	2.45	2.33	2.3	3.75	11.25
53	43.5	45	120	16	23	20	30	4000	91.2	156.9	3.37	2.69	2.65	4.49	15.25
53	43.5	45	120	16	23	20	30	4000	111.8	196.6	4.19	4.05	3.97	5.68	15.25
63	53.5	58.5	150	18	26	22	35	4000	147.9	240.1	6.17	4.85	4.75	8.7	23.9
63	53.5	58.5	150	18	26	22	35	4000	189.1	320.4	8.18	8.34	8.14	9.5	23.9

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

❷ *S：底部安装型滑块的螺栓尺寸。
*S: Bolt size for bottom mounting type of block.

❸ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

SBG-SL/SLL



(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions													
					安装螺纹孔 Mounting tap hole							注油部件 Grease fitting						
	H	W	L	E	B	J	M	DP	L1	T	K	T1	N1	T2	N2	Q1	*Q2	
SBG15 SL	28	34	60.8	3	26	26	M4	5	38.8	8	25	8	5.5	8.5	4.5	M4x0.7	Ø3.5	
SBG20 SL	30	44	77.2	3.5	32	36	M5	8	50.8	8	26.5	7	12	7	5	M6x0.75	Ø5.5	
SBG20 SLL	30	44	93.2	3.5	32	50	M5	8	66.8	8	26.5	7	12	7	5	M6x0.75	Ø5.5	
SBG25 SL	40	48	86.9	6.5	35	35	M6	8	59.5	12	33.5	12.2	12	12.1	5.5	M6x0.75	Ø5.5	
SBG25 SLL	40	48	106.4	6.5	35	50	M6	8	79	12	33.5	12.2	12	12.1	5.5	M6x0.75	Ø5.5	
SBG30 SL	45	60	100	7	40	40	M8	10	70.4	12	38	11.5	12	11.5	5.5	M6x0.75	Ø5.5	
SBG30 SLL	45	60	122.5	7	40	60	M8	10	92.9	12	38	11.5	12	11.5	5.5	M6x0.75	Ø5.5	
SBG35 SL	55	70	112.6	7.5	50	50	M8	12	80.4	15	47.5	15	12	15	6	M6x0.75	Ø5.5	
SBG35 SLL	55	70	138.1	7.5	50	72	M8	12	105.9	15	47.5	15	12	15	6	M6x0.75	Ø5.5	
SBG45 SL	70	86	140.4	10	60	60	M10	13	98	15	60	15	16.5	20	8	PT1/8	Ø8.5	
SBG45 SLL	70	86	172.4	10	60	80	M10	13	130	15	60	15	16.5	20	8	PT1/8	Ø8.5	
SBG55 SL	80	100	164.8	13	75	75	M12	18	118	18	67	18	16.5	20.5	10	PT1/8	Ø8.5	
SBG55 SLL	80	100	202.8	13	75	95	M12	18	156	18	67	18	16.5	20.5	10	PT1/8	Ø8.5	
SBG65 SL	90	126	195.2	17.5	76	70	M16	20	147	23	72.5	23	16.5	12	10	PT1/8	Ø8.5	
SBG65 SLL	90	126	255.2	17.5	76	120	M16	20	207	23	72.5	23	16.5	12	10	PT1/8	Ø8.5	

导轨尺寸 Rail dimension										基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail Lo		C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h										
15	9.5	15	60	4.5	7.5	5.3	20	3000		8.33	13.4	0.07	0.05	0.05	0.2	1.45
20	12	17.5	60	6	9.5	8.5	20	4000		14.2	25	0.22	0.18	0.18	0.33	2.2
20	12	17.5	60	6	9.5	8.5	20	4000		16.9	36.5	0.28	0.31	0.31	0.45	2.2
23	12.5	21.8	60	7	11	9	20	4000		20.9	39.2	0.35	0.31	0.3	0.56	3.1
23	12.5	21.8	60	7	11	9	20	4000		24.6	48	0.43	0.49	0.48	0.73	3.1
28	16	25	80	9	14	12	20	4000		29.2	53.8	0.59	0.49	0.48	0.98	4.45
28	16	25	80	9	14	12	20	4000		35.3	67.9	0.74	0.79	0.78	1.28	4.45
34	18	29	80	9	14	12	20	4000		38.8	68.6	0.94	0.74	0.72	1.63	6.4
34	18	29	80	9	14	12	20	4000		46	90.4	1.24	1.3	1.28	2.12	6.4
45	20.5	38	105	14	20	17	22.5	4000		61.6	110.6	1.98	1.56	1.54	2.96	11.25
45	20.5	38	105	14	20	17	22.5	4000		75.5	138.5	2.45	2.33	2.3	3.75	11.25
53	23.5	45	120	16	23	20	30	4000		91.2	156.9	3.37	2.69	2.65	4.52	15.25
53	23.5	45	120	16	23	20	30	4000		111.8	196.6	4.19	4.05	3.97	5.68	15.25
63	31.5	58.5	150	18	26	22	35	4000		147.9	240.1	6.17	4.85	4.75	7.43	23.9
63	31.5	58.5	150	18	26	22	35	4000		189.1	320.4	8.18	8.34	8.14	12.05	23.9

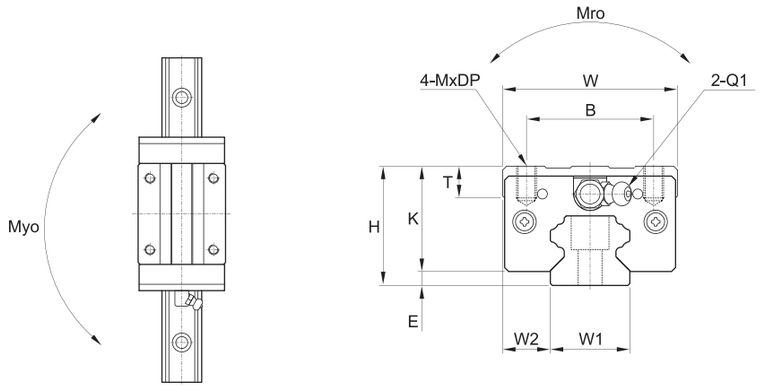
❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

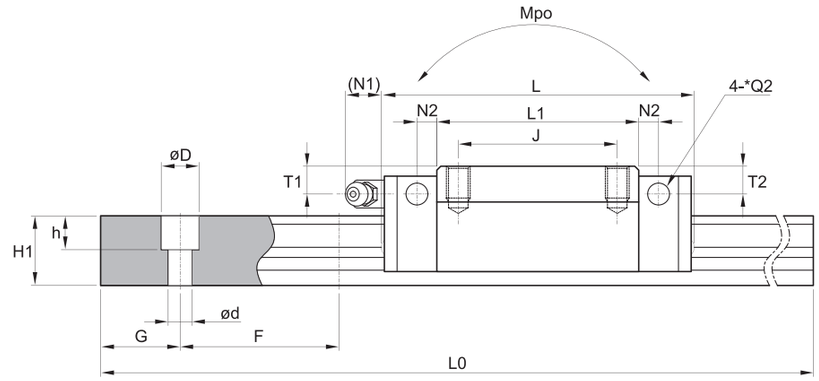
❷*Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔。
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

SBS-SL, HL/SLL, HLL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions												
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting					
					B	J	M	DP				T1	N1	T2	N2	Q1	*Q2
SBS15 SL	24	34	60.8	3	26	26	M4	5	38.8	6	21	4	5.5	4.5	4.5	M4x0.7	Ø3.5
SBS20 SL	28	44	77.2	3.5	32	32	M5	7	50.8	7.5	24.5	5	12	5	5	M6x0.75	Ø5.5
SBS20 SLL	28	44	93.2	3.5	32	50	M5	7	66.8	7.5	24.5	5	12	5	5	M6x0.75	Ø5.5
SBS25 SL	33	48	86.9	6.5	35	35	M6	6	59.5	8	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5
SBS25 SLL	33	48	106.4	6.5	35	50	M6	6	79	8	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5
SBS25 HL	36	48	86.9	6.5	35	35	M6	8	59.5	11	29.5	8.2	12	8.1	5.5	M6x0.75	Ø5.5
SBS25 HLL	36	48	106.4	6.5	35	50	M6	8	79	11	29.5	8.2	12	8.1	5.5	M6x0.75	Ø5.5
SBS30 SL	42	60	100	7	40	40	M8	10	70.4	12	35	8.5	12	8.5	5.5	M6x0.75	Ø5.5
SBS30 SLL	42	60	122.5	7	40	60	M8	10	92.9	12	35	8.5	12	8.5	5.5	M6x0.75	Ø5.5
SBS35 SL	48	70	112.6	7.5	50	50	M8	12	80.4	15	40.5	8	12	8	6	M6x0.75	Ø5.5
SBS35 SLL	48	70	138.1	7.5	50	72	M8	12	105.9	15	40.5	8	12	8	6	M6x0.75	Ø5.5
SBS45 SL	60	86	140.4	10	60	60	M10	10	98	15	50	10	16.5	10	8	PT1/8	Ø8.5
SBS45 SLL	60	86	172.4	10	60	80	M10	10	130	15	50	10	16.5	10	8	PT1/8	Ø8.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail Lo	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	9.5	15	60	4.5	7.5	5.3	20	3000	8.33	13.4	0.07	0.05	0.05	0.2	1.45
20	12	17.5	60	6	9.5	8.5	20	4000	14.2	25	0.22	0.18	0.18	0.33	2.2
20	12	17.5	60	6	9.5	8.5	20	4000	16.9	36.5	0.28	0.31	0.31	0.45	2.2
23	12.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.56	3.1
23	12.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	0.73	3.1
23	12.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.98	3.1
23	12.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	1.28	3.1
28	16	25	80	9	14	12	20	4000	29.2	53.8	0.59	0.49	0.48	0.98	4.45
28	16	25	80	9	14	12	20	4000	35.3	67.9	0.74	0.79	0.78	1.28	4.45
34	18	29	80	9	14	12	20	4000	38.8	68.6	0.94	0.74	0.72	1.63	6.4
34	18	29	80	9	14	12	20	4000	46	90.4	1.24	1.3	1.28	2.12	6.4
45	20.5	38	105	14	20	17	22.5	4000	61.6	110.6	1.98	1.56	1.54	2.96	11.25
45	20.5	38	105	14	20	17	22.5	4000	75.5	138.5	2.45	2.33	2.3	3.75	11.25

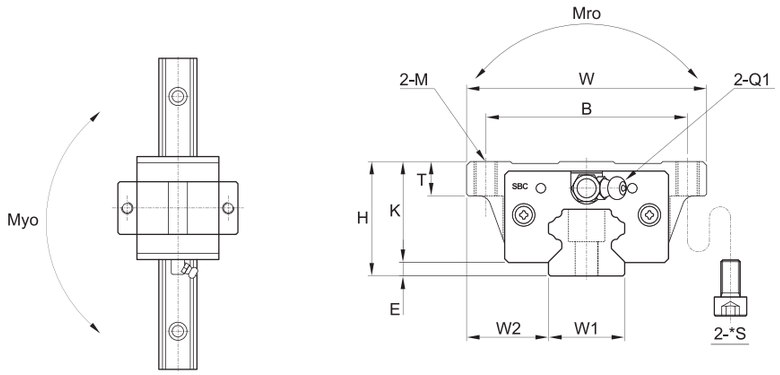
❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

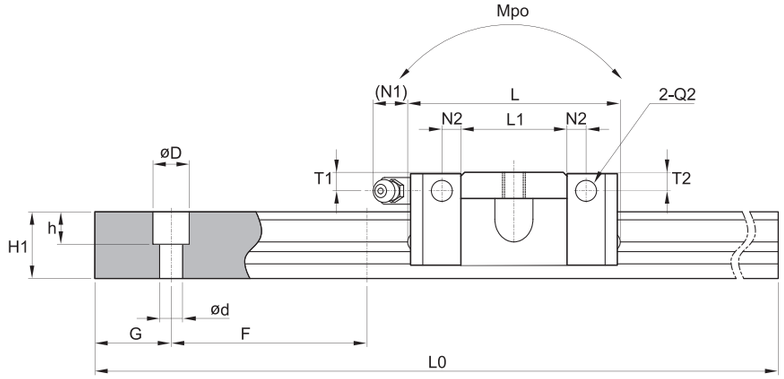
❷ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

SBS-FV





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions											
					安装螺纹孔 Mounting tap hole			L1	T	K	注油部件 Grease fitting					
	H	W	L	E	B	M	*S				T1	N1	T2	N2	Q1	*Q2
SBS15 FV	24	47	44.9	3	38	M5	M4	22.9	7.2	21	4	5.5	4.5	4.5	M4x0.7	Ø3.5
SBS20 FV	28	63	54.2	3.5	53	M6	M5	27.8	7	24.5	5	12	5	5	M6x0.75	Ø5.5
SBS25 FV	33	70	62.6	6.5	57	M8	M6	35.2	7	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail Lo	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	16	15	60	4.5	7.5	5.3	20	3000	4.48	7.23	0.04	0.03	0.03	0.1	1.45
20	21.5	17.5	60	6	9.5	8.5	20	4000	7.65	13.5	0.12	0.1	0.1	0.24	2.2
23	23.5	21.8	60	7	11	9	20	4000	11.29	21.1	0.19	0.17	0.17	0.37	3.1

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

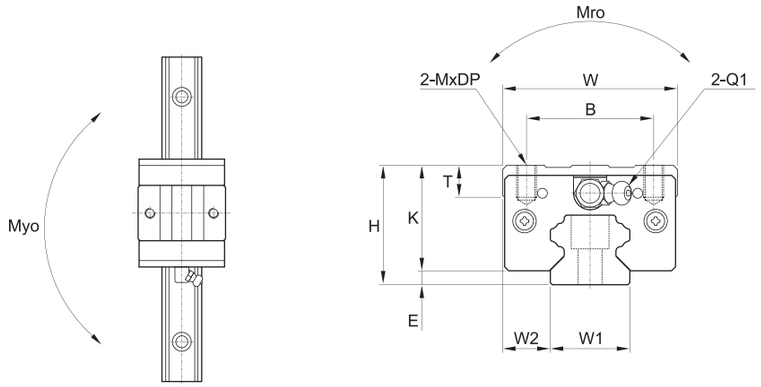
❷ *S：. 底部安装型滑块的螺栓尺寸。
*S: Bolt size for bottom mounting type of block.

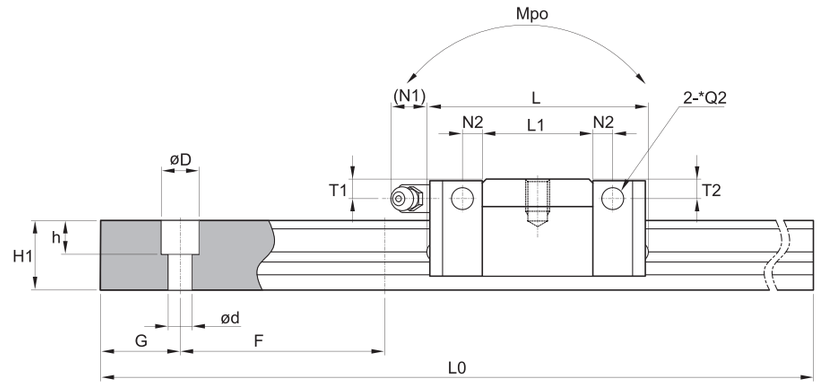
❸ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
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直线导轨系统
Linear Rail System

SBG型标准直线导轨系统
SBG Standard Linear Rail System

SBS-SV





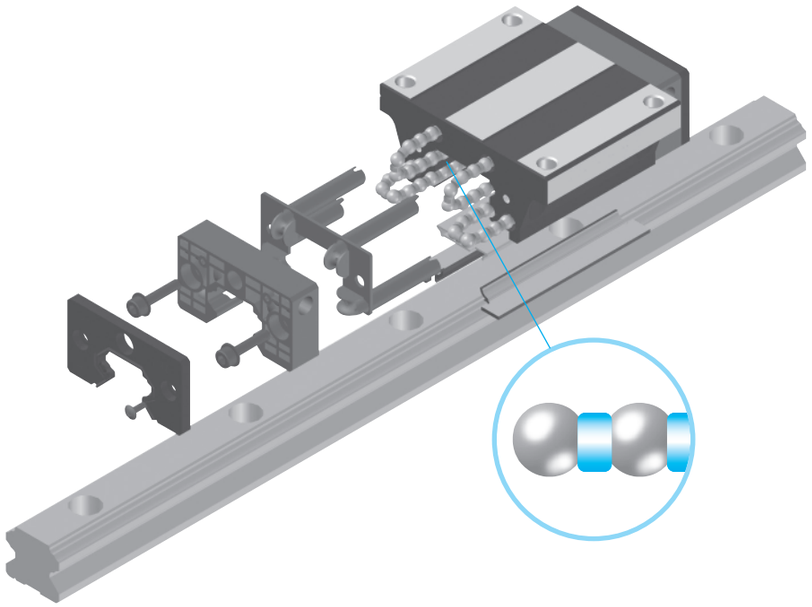
(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions											
	H	W	L	E	安装螺纹孔 Mounting tap hole			L1	T	K	注油部件 Grease fitting					
					B	M	DP				T1	N1	T2	N2	Q1	*Q2
SBS15 SV	24	34	44.9	3	26	M4	5	22.9	6	21	4	5.5	4.5	4.5	M4x0.7	Ø3.5
SBS20 SV	28	44	54.2	3.5	32	M5	7	27.8	7.5	24.5	5	12	5	5	M6x0.75	Ø5.5
SBS25 SV	33	48	62.6	6.5	35	M6	6	35.2	8	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail Lo	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
15	9.5	15	60	4.5	7.5	5.3	20	3000	4.48	7.23	0.04	0.03	0.03	0.1	1.45
20	12	17.5	60	6	9.5	8.5	20	4000	7.65	13.5	0.12	0.1	0.1	0.19	2.2
23	12.5	21.8	60	7	11	9	20	4000	11.29	21.1	0.19	0.17	0.17	0.32	3.1

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

❷*Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔。
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When you order the side grease nipple, we build it by ourselves.



[设计特征]
[Design feature]

SPG/SPS型是在滚珠间插入间隔器的直线导轨。这种间隔器既能避免金属间的接触以减少噪音级，又能储存润滑脂确保长期免维护运行。

SPG, SPS type is ball spacer inserted type between balls. This spacer minimizes the noise level by eliminating metal to metal contact and storing grease which provides long term, maintenance free operation.

[使用SBG型标准导轨]
[Using SBG standard rail]

SPG/SPS型使用SBG型标准导轨。

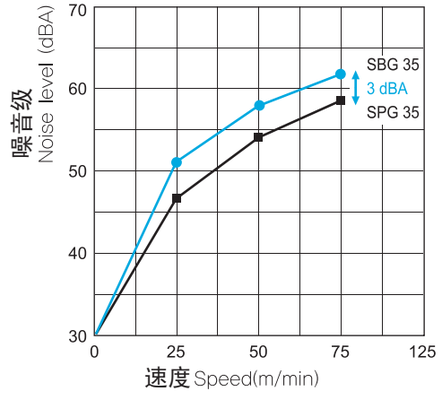
SPG, SPS type are using SBG standard rail.

[与SBG型可尺寸互换]
[Dimensionally interchangeable with SBG type]

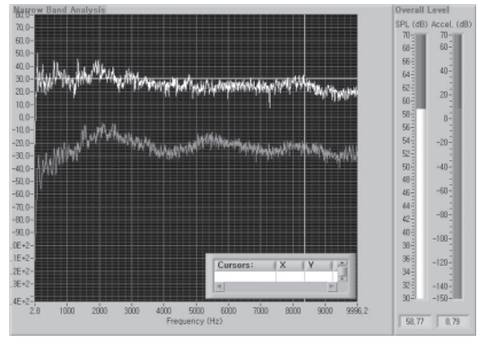
SPG/SPS spacer series blocks are dimensionally interchangeable with SBG/SBS blocks.

SPG/SPS间隔器系列滑块在尺寸上能与SBG/SBS型滑块互换。

[SBG35与SPG35型的噪音级测试]
[Noise level test for SBG35 and SPG35]

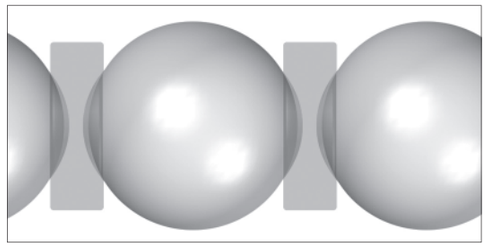


（噪音级对比）
(Comparison of noise level)



(SPG35 1.3m/sec)

[润滑脂保留]
[Grease retention]



间隔器可提供润滑脂储存空间，因此能确保长期免维护运行。

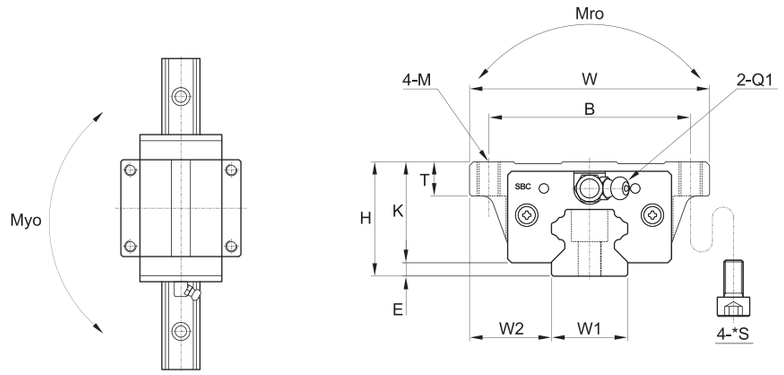
The spacers provide grease storage areas providing long term, maintenance free operation.

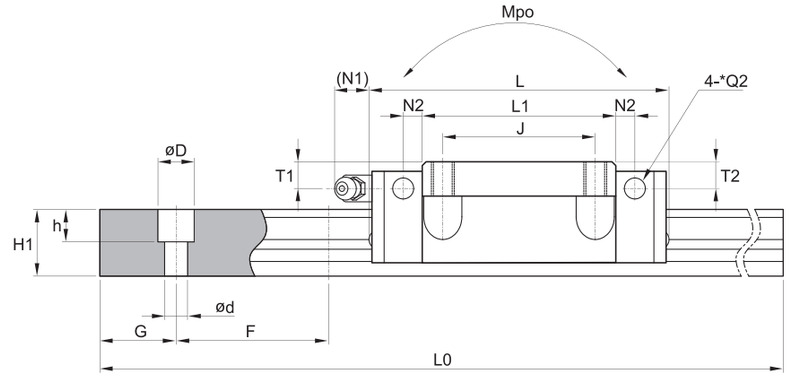
[订购实例]
[Ordering example]

SPG/SPS型的订购实例与SBG型的相同。请参见SBG型的订购实例。

Ordering example for SPG/SPS type are identical with SBG type ordering. Therefore, please see the ordering example for SBG type.

SPG-FL/FLL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions												
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting					
					B	J	M	*S				T1	N1	T2	N2	Q1	*Q2
SPG20 FL	30	63	77.2	3.5	53	40	M6	M5	50.8	9	26.5	7	12	7	5	M6x0.75	Ø5.5
SPG20 FLL	30	63	93.2	3.5	53	40	M6	M5	66.8	9	26.5	7	12	7	5	M6x0.75	Ø5.5
SPG25 FL	36	70	86.9	6.5	57	45	M8	M6	59.5	10	29.5	8.2	12	8.1	5.5	M6x0.75	Ø5.5
SPG25 FLL	36	70	106.4	6.5	57	45	M8	M6	79	10	29.5	8.2	12	8.1	5.5	M6x0.75	Ø5.5
SPG30 FL	42	90	100	7	72	52	M10	M8	70.4	12	35	8.5	12	8.5	5.5	M6x0.75	Ø5.5
SPG30 FLL	42	90	122.5	7	72	52	M10	M8	92.9	12	35	8.5	12	8.5	5.5	M6x0.75	Ø5.5
SPG35 FL	48	100	112.6	7.5	82	62	M10	M8	80.4	13	40.5	8	12	8	6	M6x0.75	Ø5.5
SPG35 FLL	48	100	138.1	7.5	82	62	M10	M8	105.9	13	40.5	8	12	8	6	M6x0.75	Ø5.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
20	21.5	17.5	60	6	9.5	8.5	20	4000	14.2	25	0.22	0.18	0.18	0.42	2.2
20	21.5	17.5	60	6	9.5	8.5	20	4000	16.9	36.5	0.28	0.31	0.31	0.54	2.2
23	23.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.62	3.1
23	23.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	0.78	3.1
28	31	25	80	9	14	12	20	4000	29.2	53.8	0.59	0.49	0.48	1.1	4.45
28	31	25	80	9	14	12	20	4000	35.3	67.9	0.74	0.79	0.78	1.44	4.45
34	33	29	80	9	14	12	20	4000	38.8	68.6	0.94	0.74	0.72	1.57	6.4
34	33	29	80	9	14	12	20	4000	46	90.4	1.24	1.3	1.28	2.14	6.4

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

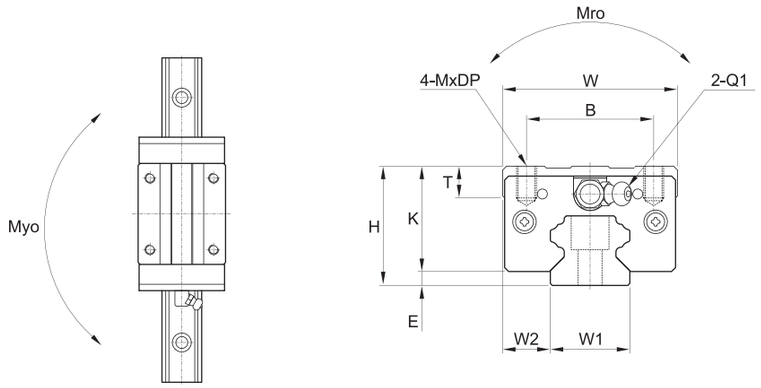
❷ *S：底部安装型滑块的螺栓尺寸。
*S: Bolt size for bottom mounting type of block.

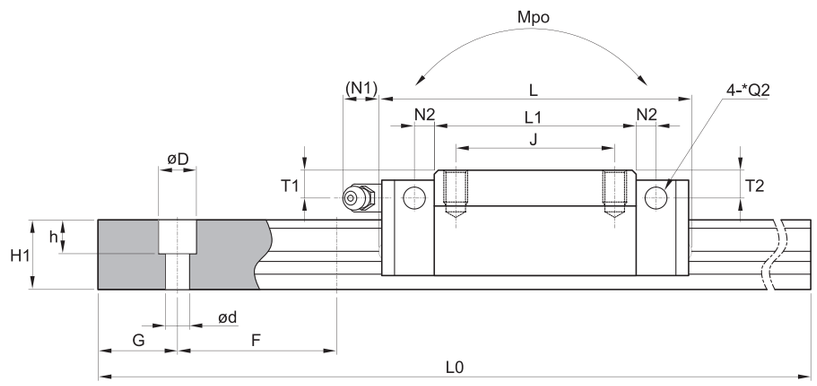
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直线导轨系统
Linear Rail System

SSPG/SPS型间隔器直线导轨系统
SPG / SPS Spacer Linear Rail System

SPG-SL/SL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions												
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting					
					B	J	M	DP				T1	N1	T2	N2	Q1	*Q2
SPG20 SL	30	44	77.2	3.5	32	36	M5	8	50.8	8	26.5	8	12	7	5	M6x0.75	Ø5.5
SPG20 SLL	30	44	93.2	3.5	32	50	M5	8	66.8	8	26.5	8	12	7	5	M6x0.75	Ø5.5
SPG25 SL	40	48	86.9	6.5	35	35	M6	8	59.5	12	33.5	12	12	12.2	5.5	M6x0.75	Ø5.5
SPG25 SLL	40	48	106.4	6.5	35	50	M6	8	79	12	33.5	12	12	12.2	5.5	M6x0.75	Ø5.5
SPG30 SL	45	60	100	7	40	40	M8	10	70.4	12	38	12	12	11.5	5.5	M6x0.75	Ø5.5
SPG30 SLL	45	60	122.5	7	40	60	M8	10	92.9	12	38	12	12	11.5	5.5	M6x0.75	Ø5.5
SPG35 SL	55	70	112.6	7.5	50	50	M8	12	80.4	15	47.5	15	12	15	6	M6x0.75	Ø5.5
SPG35 SLL	55	70	138.1	7.5	50	72	M8	12	105.9	15	47.5	15	12	15	6	M6x0.75	Ø5.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
20	12	17.5	60	6	9.5	8.5	20	4000	14.2	25	0.22	0.18	0.18	0.33	2.2
20	12	17.5	60	6	9.5	8.5	20	4000	16.9	36.5	0.28	0.31	0.31	0.45	2.2
23	12.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.56	3.1
23	12.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	0.73	3.1
28	16	25	80	9	14	12	20	4000	29.2	53.8	0.59	0.49	0.48	0.98	4.45
28	16	25	80	9	14	12	20	4000	35.3	67.9	0.74	0.79	0.78	1.28	4.45
34	18	29	80	9	14	12	20	4000	38.8	68.6	0.94	0.74	0.72	1.63	6.4
34	18	29	80	9	14	12	20	4000	46	90.4	1.24	1.3	1.28	2.12	6.4

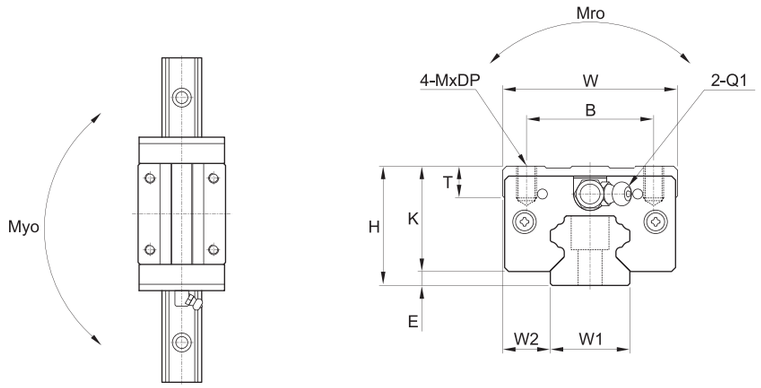
❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

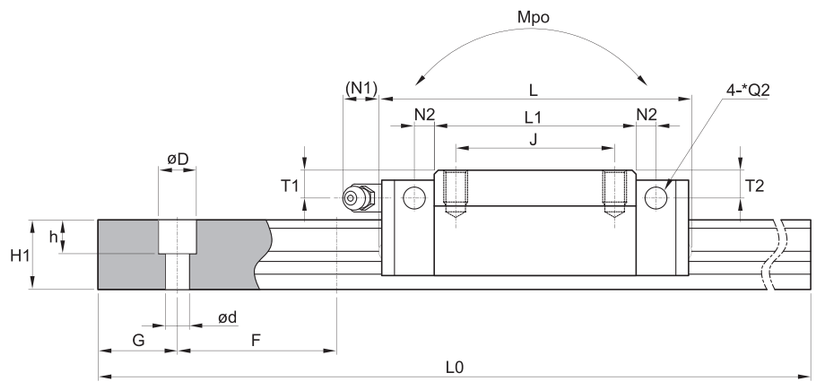
❷ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
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直线导轨系统
Linear Rail System

SSPG/SPS型间隔器直线导轨系统
SPG / SPS Spacer Linear Rail System

SPS-SL, HL/SLL, HL





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions												
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting					
					B	J	M	DP				T1	N1	T2	N2	Q1	*Q2
SPS20 SL	28	44	77.2	3.5	32	32	M5	7	50.8	7.5	24.5	5	12	5	5	M6x0.75	Ø5.5
SPS20 SLL	28	44	93.2	3.5	32	50	M5	7	66.8	7.5	24.5	5	12	5	5	M6x0.75	Ø5.5
SPS25 SL	33	48	86.9	6.5	35	35	M6	6	59.5	8	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5
SPS25 SLL	33	48	106.4	6.5	35	50	M6	6	79	8	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5
SPS25 HL	36	48	86.9	6.5	35	35	M6	8	59.5	11	29.5	8.2	12	8.1	5.5	M6x0.75	Ø5.5
SPS25 HLL	36	48	106.4	6.5	35	50	M6	8	79	11	29.5	8.2	12	8.1	5.5	M6x0.75	Ø5.5
SPS30 SL	42	60	100	7	40	40	M8	10	70.4	12	35	8.5	12	8.5	5.5	M6x0.75	Ø5.5
SPS30 SLL	42	60	122.5	7	40	60	M8	10	92.9	12	35	8.5	12	8.5	5.5	M6x0.75	Ø5.5
SPS35 SL	48	70	112.6	7.5	50	50	M8	12	80.4	15	40.5	8	12	8	6	M6x0.75	Ø5.5
SPS35 SLL	48	70	138.1	7.5	50	72	M8	12	105.9	15	40.5	8	12	8	6	M6x0.75	Ø5.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
20	12	17.5	60	6	9.5	8.5	20	4000	14.2	25	0.22	0.18	0.18	0.33	2.2
20	12	17.5	60	6	9.5	8.5	20	4000	16.9	36.5	0.28	0.31	0.31	0.45	2.2
23	12.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.56	3.1
23	12.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	0.73	3.1
23	12.5	21.8	60	7	11	9	20	4000	20.9	39.2	0.35	0.31	0.3	0.98	3.1
23	12.5	21.8	60	7	11	9	20	4000	24.6	48	0.43	0.49	0.48	1.28	3.1
28	16	25	80	9	14	12	20	4000	29.2	53.8	0.59	0.49	0.48	0.98	4.45
28	16	25	80	9	14	12	20	4000	35.3	67.9	0.74	0.79	0.78	1.28	4.45
34	18	29	80	9	14	12	20	4000	38.8	68.6	0.94	0.74	0.72	1.63	6.4
34	18	29	80	9	14	12	20	4000	46	90.4	1.24	1.3	1.28	2.12	6.4

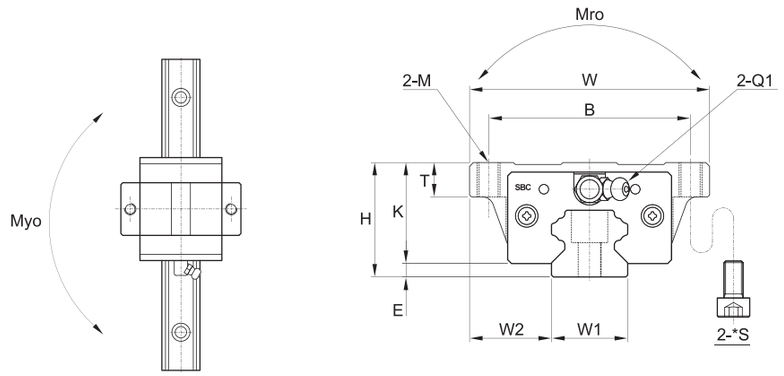
❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

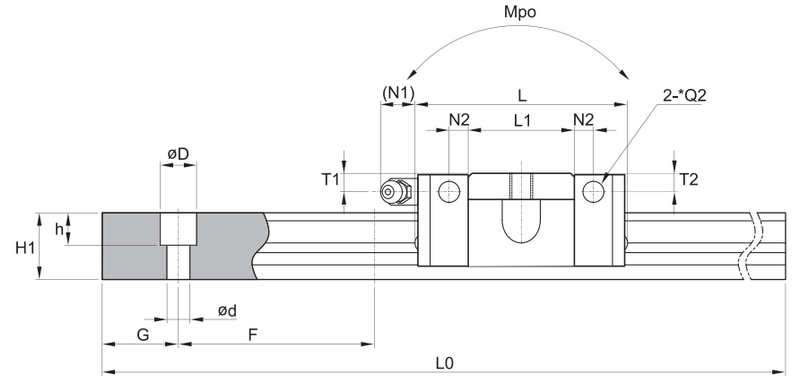
❷ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System

SSPG/SPS型间隔器直线导轨系统
SPG / SPS Spacer Linear Rail System

SPS-FV





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions											
	H	W	L	E	安装螺纹孔 Mounting tap hole			L1	T	K	注油部件 Grease fitting					
					B	M	*S				T1	N1	T2	N2	Q1	*Q2
SPS20 FV	28	63	54.2	3.5	53	M6	M5	27.8	7	24.5	5	12	5	5	M6x0.75	Ø5.5
SPS25 FV	33	70	62.6	6.5	57	M8	M6	35.2	7	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5

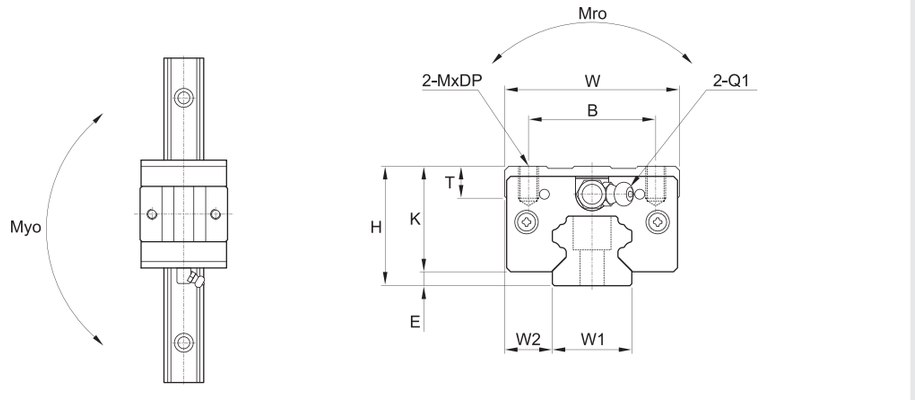
导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
20	21.5	17.5	60	6	9.5	8.5	20	4000	7.65	13.5	0.12	0.1	0.1	0.24	2.2
23	23.5	21.8	60	7	11	9	20	4000	11.29	21.1	0.19	0.17	0.17	0.37	3.1

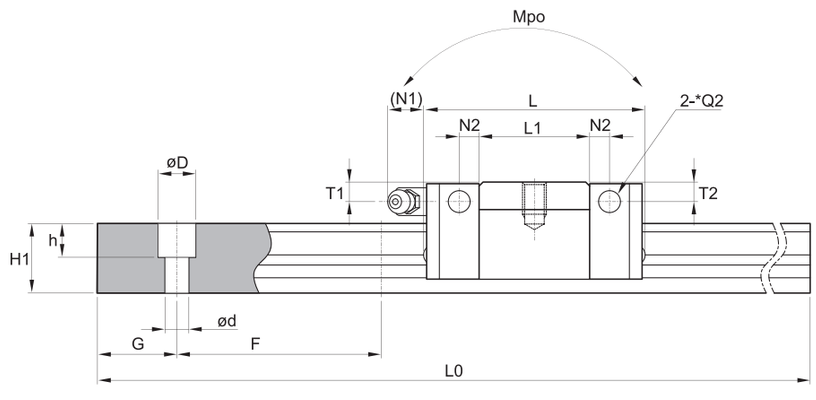
❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

❷ *S：底部安装型滑块的螺栓尺寸。
*S: Bolt size for bottom mounting type of block.

❸ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

SPS-SV





(单位Unit : mm)

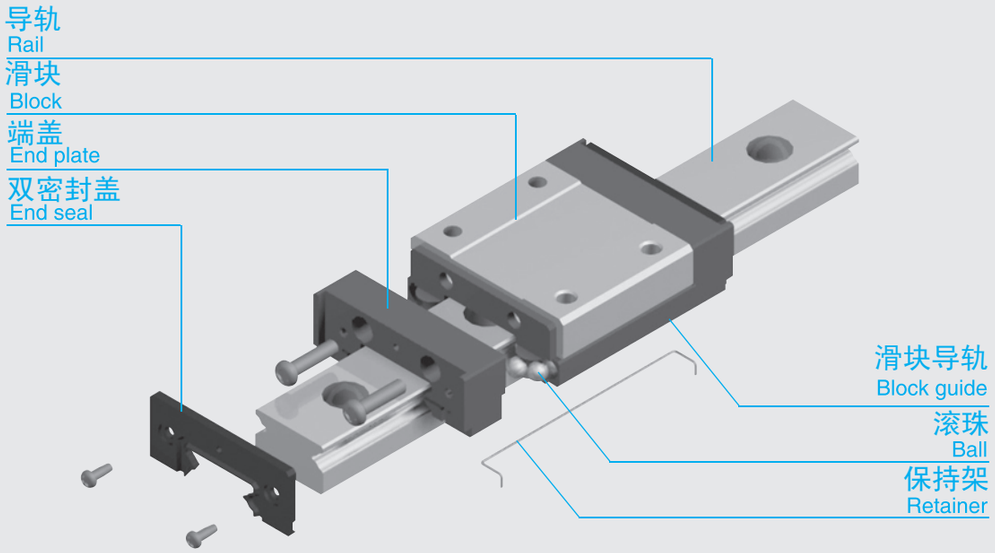
型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions											
	H	W	L	E	安装螺纹孔 Mounting tap hole			L1	T	K	注油部件 Grease fitting					
					B	M	DP				T1	N1	T2	N2	Q1	*Q2
SPS20 SV	28	44	54.2	3.5	32	M5	7	27.8	7.5	24.5	5	12	5	5	M6x0.75	Ø5.5
SPS25 SV	33	48	62.6	6.5	35	M6	6	35.2	8	26.5	5.2	12	5.1	5.5	M6x0.75	Ø5.5

导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail L0	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
20	12	17.5	60	6	9.5	8.5	20	4000	7.65	13.5	0.12	0.1	0.1	0.19	2.2
23	12.5	21.8	60	7	11	9	20	4000	11.29	21.1	0.19	0.17	0.17	0.32	3.1

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

❷ *Q2：侧面注油部件的注入孔未留，以防止异物进入导轨系统内部。
在您订购侧面注油部件时，我们会自行开孔
*Q2: The hole of side grease nipple is not made to prevent a foreign substance from going into inside.
When you order the side grease nipple, we build it by ourselves.

直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System



[结构特性 Feature of structure]

SBC Miniature linear rail system utilizes two rows of ball bearings which make four point contact between the rail and block. This design achieves both a slim profile and high rigidity. The special engineered plastic is used for the end-plate allows for long life ball recirculation.

SBC型微型直线导轨系统采用了在导轨和滑块之间进行四点接触的双列滚珠轴承。这种设计不仅具有超薄型面，而且具有高刚度。采用特殊工程塑料制成的端盖能使滚珠长久地回流运行。

[滚珠固定 Ball retention]

To retain the ball bearings inside the block, a wire retainer is used between the block and rail. With this retainer, the block can be carefully emoved from the rail without loosing ball bearings.

在导轨和滑块之间采用了钢丝制成的保持架，可将滚珠轴承固定在滑块内部。有了这种保持架，用户不必松开滚珠轴承就能小心地将滑块从导轨中取出。

[低噪音 Low noise]

With a ball return path made from engineered plastic, contact noise between the balls and block wall is removed, therefore achieving low noise.

采用工程塑料制成的滚珠回流管，可确保消除滚珠和滑块壁之间的接触噪音，因此能达到更低的噪音级。

[平稳运行 Smooth movement]

The steel block, ball returns, and end caps are carefully engineered to act as a single path enabling smooth operation in both horizontal and vertical applications.

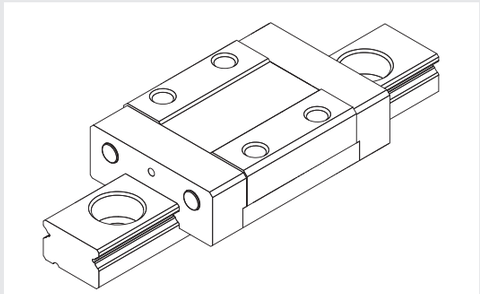
钢滑块、滚珠回流管和端盖经精心设计后可作为一个独立的通道，能确保在水平和垂直应用条件下进行平稳运行。

[出色的耐腐蚀性 Excellent corrosion resistance]

Both the rail and block are made from stainless steel for excellent corrosion resistance. This is ideal for semiconductor, life science, LCD, or other clean room production environments.

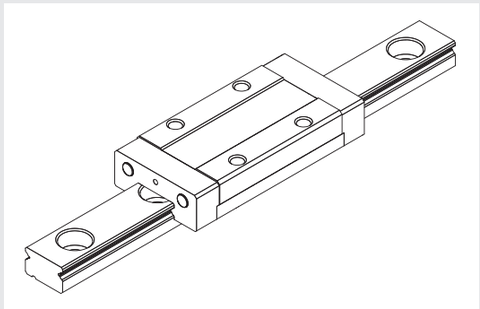
导轨与滑块均采用不锈钢制成以确保出色的耐腐蚀性。这特别适用于半导体、生命科学、LCD或其他无尘室生产环境。

类型与特征
Types and features



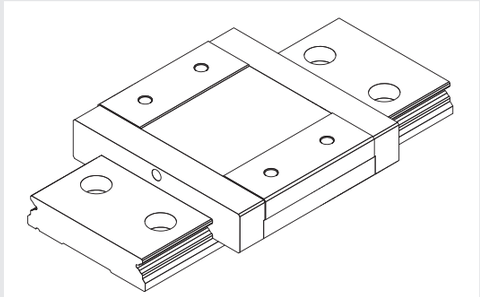
[SBM型]
[SBM type]

标准微型
Standard type of miniature.



[SBML型]
[SBML type]

滑块长度经改造以提高负载能力。
Block length is modified type to increase load capacity.



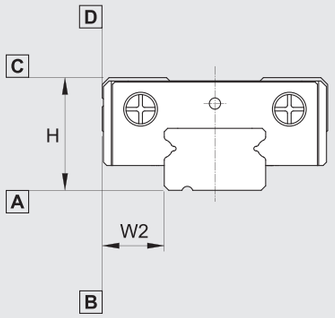
[SBMW型]
[SBMW type]

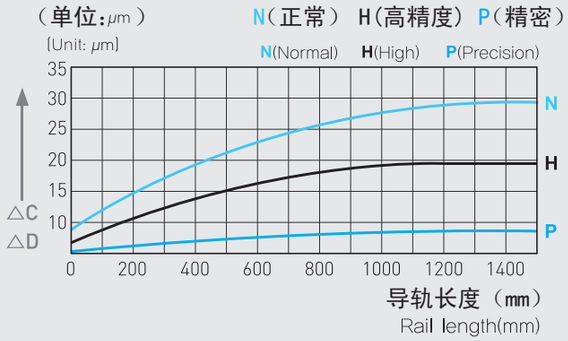
直线滑块和导轨的宽度与长度均经过改造，以提高额定负载能力和容许力矩。

The width and length of linear block and rail are modified to increase load ratings and permissible moments.

直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System

精度
Accuracy





(Unit : mm)

项目 Item	N	H	P
高度H的公差 Tolerance for the height **H**	±0.04	±0.02	±0.01
导轨-滑块横向距离W2的公差 Tolerance for the rail-to-block lateral distance **W2**	±0.04	±0.025	±0.015
滑块之间的高度H差值的公差 Tolerance for the height **H** difference among blocks	0.03	0.015	0.007
滑块之间的导轨-滑块横向距离W2的公差 Tolerance for rail-to-block lateral distance **W2** distance among blocks	0.03	0.015	0.007
表面C与表面A运动平行度 Running parallelism of surface C with surface A	△C		
表面D与表面B的运动平行度 Running parallelism of surface D with surface B	△D		

- N：正常 **N** : Normal
- H：高精度 **H** : High
- P：精密 **P** : Precision

[预载]
[Preload]

参考 Reference	预载量 Volume of preload
K1	Max. 0.02C
K2	0.04 ~ 0.06C

[密封阻力]
[Seal resistance]

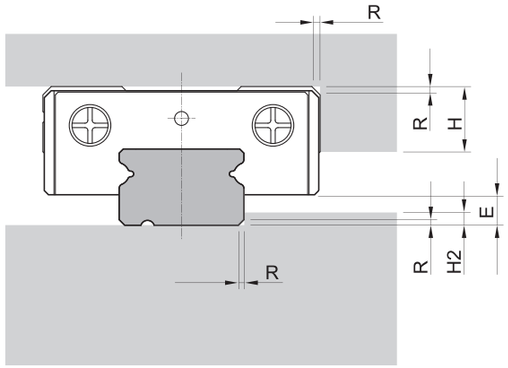
（单位 Unit： N）

参考 Reference	SBM/SBML	SBMW
09	0.2	0.8
12	0.59	1.1
15	1.18	1.3

[润滑脂]
[Grease]

SBM(L), SBMW Uses two types of grease according to working conditions.
For details, please see the technical data for grease.
SBM(L)/SBMW型可根据运行条件使用两类润滑脂。
请参见润滑脂的技术数据了解详情。

肩高与圆角半径R
Shoulder height and fillet radius R

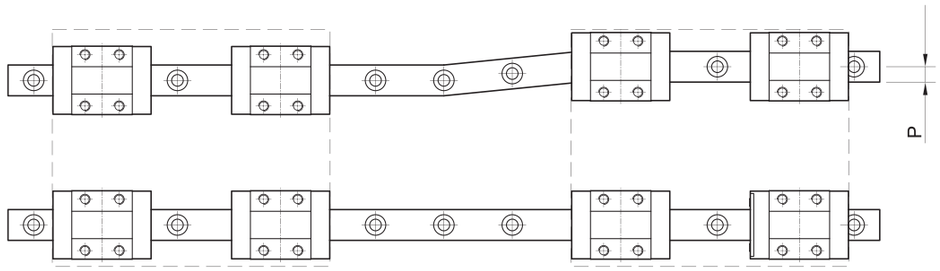


（单位Unit : mm）

型号 Model number	圆角半径R Fillet radius R	肩高 Shoulders height H1	肩高 Shoulders height H2	E
SBM(L)09	0.3	3	1.9	2.2
SBM(L)12	0.3	4	2	3
SBM(L)15	0.3	5	2.5	4
SBMW09	0.3	3	3.4	3.7
SBMW12	0.3	4	3.7	4
SBMW15	0.3	5	3.4	3.7

直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System

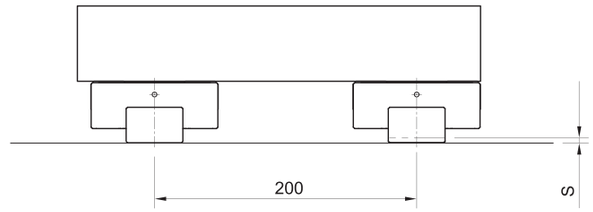
容许平行度公差（P）
Permissible tolerance (P) of parallelism



（单位Unit : μm）

型号尺寸 Model size	K1	K2
09	4	3
12	9	5
15	10	6

双水平偏移的容许公差（S）
Permissible tolerance (S) of two level offset



（单位Unit : μm）

型号尺寸 Model size	K1	K2
09	35	6
12	50	12
15	60	20

直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System

订购实例
Ordering example

[密封阻力]
[Seal resistance]

SBM09 – K1
[1] [2]

[1]型号：SBM、SBML、SBMW
Model : SBM, SBML, SBMW

[2]预载：K1、K2
Preload : K1, K2

[导轨订购实例]
[Ordering example for rail]

SBM09 – 600L – B
[1] [2] [3]

[1] 型号：SBM、SBMW
Model : SBM, SBMW

[2] 导轨长度
Rail length

[3] 通孔导轨：标准（无符号）
Through tap hole rail : Standard (No symbol)

※ 只有订购导轨才适用精度等级N。
If only rail is ordered, N grade is available.

[订购导轨与滑块组合]
[Ordering for assembled rail and block]

SBM09 – 2 – K1 – 600 – N – R – B – II
[1] [2] [3] [4] [5] [6] [7] [8]

[1] 型号：SBM, SBML, SBMW
Model : SBM, SBML, SBMW

[2] 导轨上的滑块数量
Block quantity on rail

[3] 预载：K1、K2
Preload : K1, K2

[4] 导轨长度
Rail length

[5] 精度等级：N, H, P
Accuracy : N, H, P

[6] 表面处理
Surface treatment

[7] 通孔导轨：标准（无符号）
Through tap hole rail : Standard (No symbol)

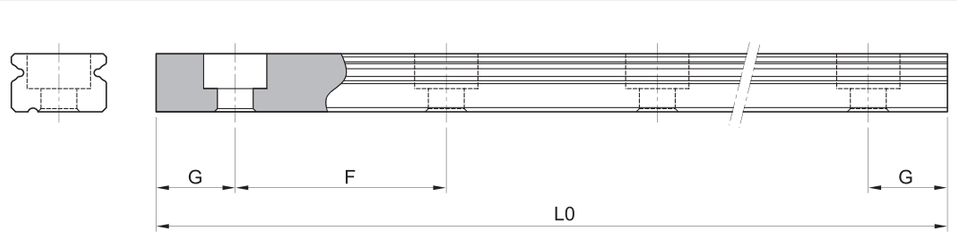
[8] 导轨：每个轴的导轨数量，1=I，2=II... 4=IV等
Rail : Number of rails per axis 1=I, 2=II... 4+IV etc.

※ 如需更高的精度和刚度，建议订购滑块和导轨组合。
We recommend block and rail assembled to be ordered where high-precision and high-rigidity are required.

※ 如需表面处理，请根据每种表面处理符号正确标记。
For surface treatment, please mark according to each surface treatment symbol.

※ 如需特殊尺寸G，请在订购时正确标记。
If special G dimension is required, please mark when you place an order.

标准和最大长度
Standard and Max length



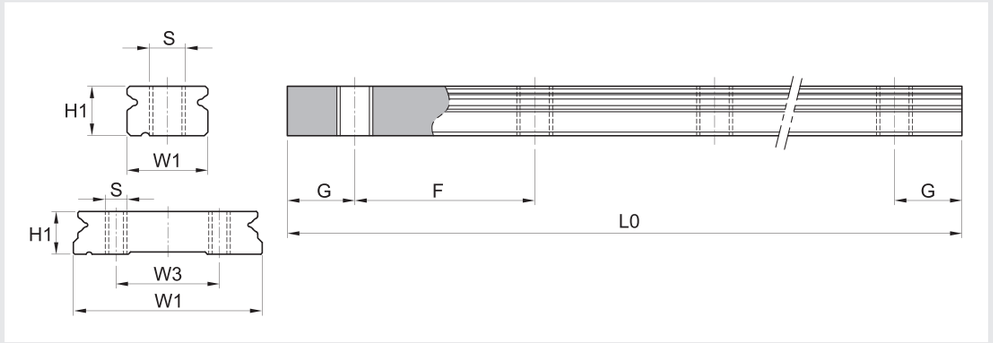
（单位Unit :mm）

型号 Model number	SBM(L)09	SBM(L)12	SBM(L)15	SBMW09	SBMW12	SBMW15
标准长度 Standard length	55	70	70	50	70	110
	75	95	110	80	110	150
	95	120	150	110	150	190
	115	145	190	140	190	230
	135	170	230	170	230	270
	155	195	270	200	270	350
	175	220	310	260	350	430
	215	245	350	320	430	510
	255	270	390	380	510	590
	295	320	430	440	590	670
	355	395	470	500	670	750
	415	470	590	560	750	830
	495	545	670	620	830	910
	535	620	830	680	910	990
	615	695	910	740	990	1070
	675	770	990	800	1070	1190
	715	870	1070	860	1190	
	735	970	1190	920		
	795	1020		980		
	875	1195		1040		
	955			1100		
	995			1190		
	1035					
	1115					
	1195					
F	20	25	40	30	40	40
G	7.5	10	15	10	15	15
L0（最大长度） L0(Max length)	1195	1195	1190	1190	1190	1190

* SBM/SBML型使用相同的导轨。.
SBM, SBML use same rail.
* 如需特殊G尺寸，请在订购时正确标记。
If special G dimension is required, please mark when you place an order.

直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System

微型通孔导轨
Miniature through tap hole rail

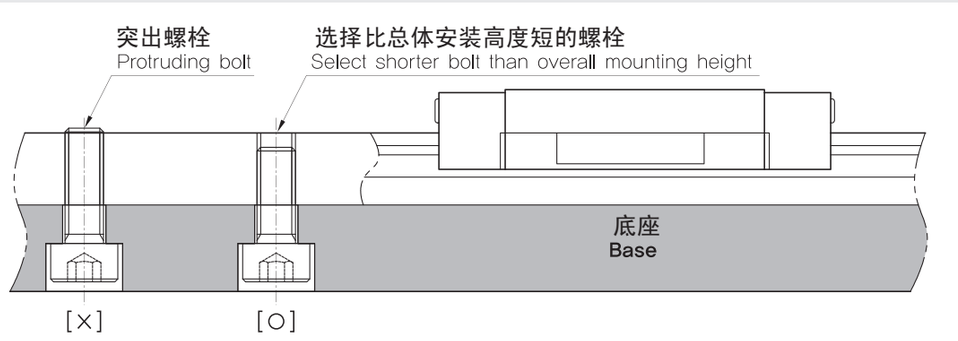


（单位Unit : mm）

型号 Model	W1	W3	H1	S	G	F	L0 （最大长度） (Max length)	质量 Mass (kg/m)
SBM 09-B	9	-	5.5	M4x0.7	7.5	20	1195	0.32
SBM 12-B	12	-	7.5	M4x0.7	10	25	1195	0.32
SBM 15-B	15	-	9.5	M4x0.7	15	40	1190	0.59
SBMW 09-B	18	-	7.5	M4x0.7	10	30	1190	0.99
SBMW 12-B	24	-	8.5	M5x0.8	15	40	1190	1.42
SBMW 15-B	42	23	9.5	M5x0.8	15	40	1190	2.93

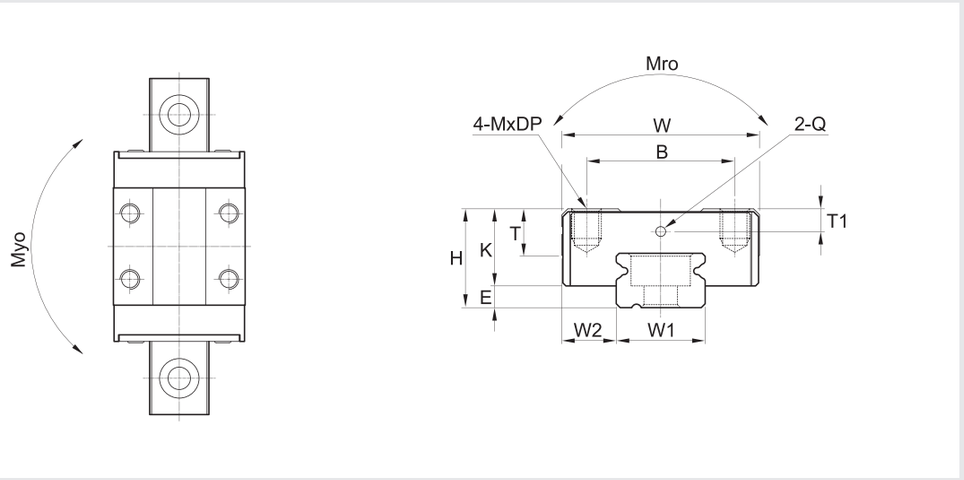
安装微型通孔导轨的注意事项
Caution for mounting miniature through tap hole rail

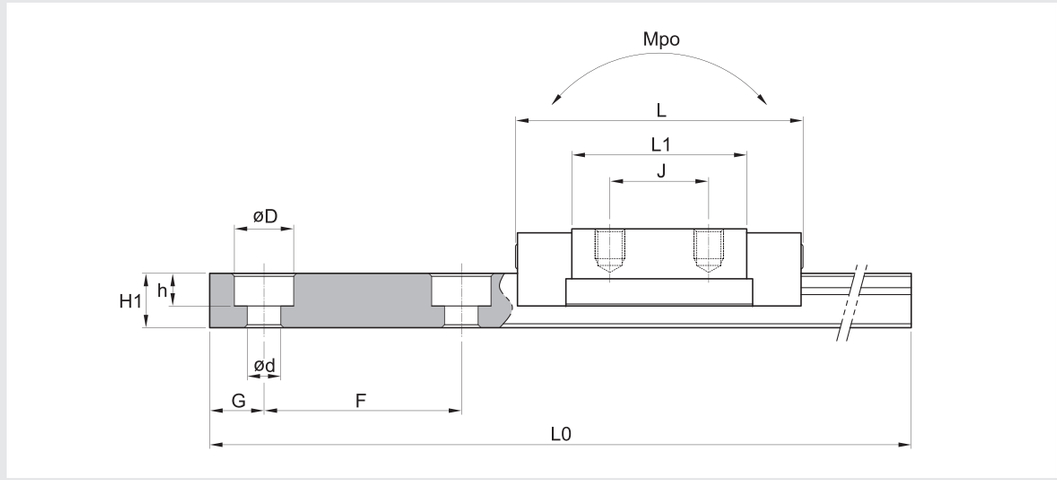
如果安装螺栓比总体安装高度长，螺栓可能会突出，进而会干扰密封或轴承。因此，请选择适用的螺栓。
If the mounting bolt is longer than overall mounting height, the bolt can protrude which can cause tinterference with the seal or bearing itself. Therefore, make sure the appropriate bolt selection.



直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System

SBM/SBML





(单位Unit : mm)

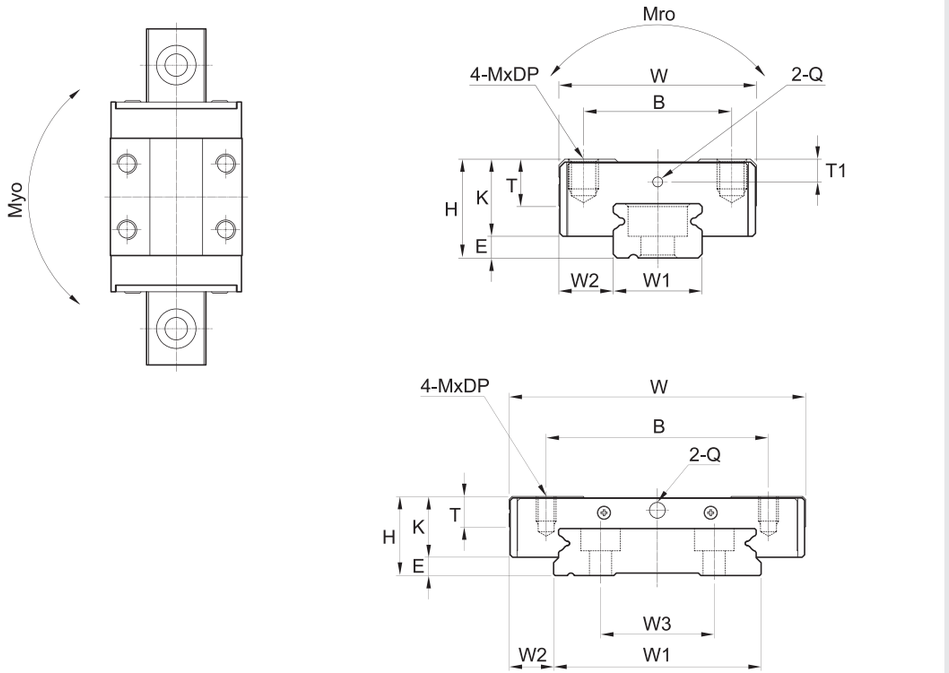
型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions								
	H	W	L	E	安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Grease fitting	
					B	J	M	DP				T1	Q
SBM 09	10	20	30.4	2.2	15	10	M3	3	17.8	5	7.8	2.3	Ø1
SBML 09	10	20	40.8	2.2	15	16	M3	3	28.2	5	7.8	2.3	Ø1
SBM 12	13	27	35	3	20	15	M3	3.5	19.8	6	10	2.8	Ø1
SBML 12	13	27	47.6	3	20	20	M3	3.5	32.4	6	10	2.8	Ø1
SBM 15	16	32	43	4	25	20	M3	4	25.4	7	12	3.1	Ø1
SBML 15	16	32	58.8	4	25	25	M3	4	41.2	7	12	3.1	Ø1

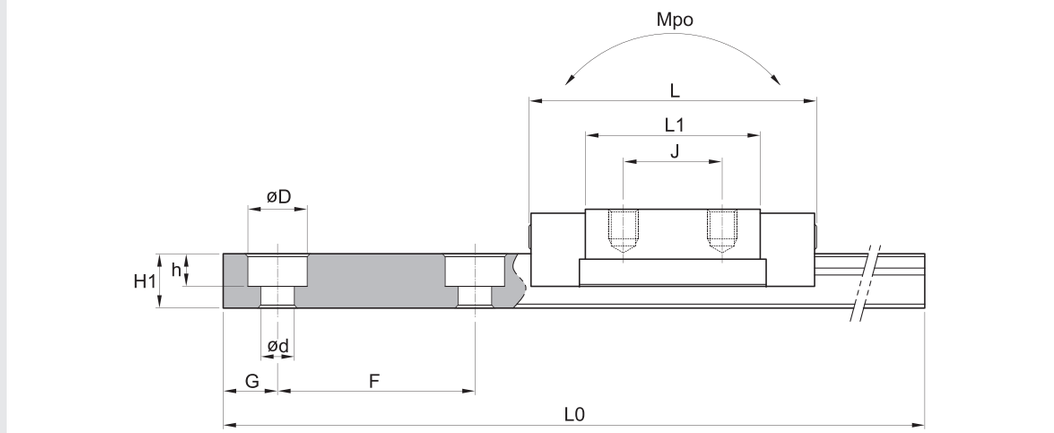
导轨尺寸 Rail dimension									基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail LO	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
				d	D	h									
9	5.5	5.5	20	4	6	3.3	7.5	1195	1.4	2.7	12.15	6.01	6.01	0.013	0.32
9	5.5	5.5	20	4	6	3.3	7.5	1195	2.1	4.6	20.7	16.22	16.22	0.023	0.32
12	7.5	7.5	25	4	6	4.5	10	1195	3.3	4.9	29.4	12.13	12.13	0.029	0.59
12	7.5	7.5	25	4	6	4.5	10	1195	5	9.1	54.6	36.86	36.86	0.043	0.59
15	8.5	9.5	40	4	6	4.5	15	1190	4.9	7.5	56.25	23.81	23.81	0.052	0.99
15	8.5	9.5	40	4	6	4.5	15	1190	7.1	12.9	96.75	66.44	66.44	0.079	0.99

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

直线导轨系统
Linear Rail System
微型直线导轨系统
Miniature Linear Rail System

SBMW





(单位Unit : mm)

型号 Model	安装尺寸 Mounting dimension				滑块尺寸 Block dimensions								
					安装螺纹孔 Mounting tap hole				L1	T	K	注油部件 Greasing hole Grease fitting	
	H	W	L	E	B	J	M	DP				T1	Q
SBMW 09	12	30	42.3	3.7	21	12	M3	3	27	4.5	8.3	2	Ø1.4
SBMW 12	14	40	48.4	4	28	15	M3	3.5	30.9	5	10	2.4	Ø1.6
SBMW 15	16	60	57.5	3.7	45	20	M3	4.5	38.9	6.2	12.3	2.8	Ø3.2

导轨尺寸 Rail dimension										基本额定载荷 Basic load rating [kN]		容许静力矩 Permissible static moment [kN • m]			质量 Mass	
W1	W2	H1	W3	F	螺栓孔 Bolt hole			G	导轨最大长度 Max length of rail Lo	C	Co	Mro	Mpo	Myo	滑块 Block [kg]	导轨 Rail [kg/m]
					d	D	h									
18	6	7.5	-	30	3.5	6	4.5	10	1190	2.45	3.92	35.96	16.26	16.26	0.03	0.99
24	8	8.5	-	40	4.5	8	4.5	15	1190	4.02	6.08	47.62	17.15	18.62	0.03	1.42
42	9	9.5	23	40	4.5	8	4.5	15	1190	6.66	9.80	136.9	35.28	38.22	0.12	2.93

❶ C（基本额定动载荷），Co（基本额定静载荷）
C (Basic dynamic load rating), Co (Basic static load rating)

滚珠丝杠
Ball Screw

技术数据/SBC精密转造滚珠丝杠/
DIN标准SBC精密转造滚珠丝杠/
FA- SFA系列研磨滚珠丝杠

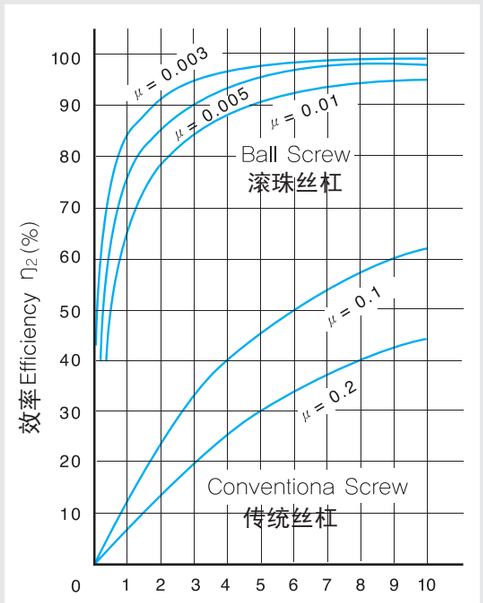
Technical Data / SBC Precision Rolled Ball Screw /
DIN Standard SBC Precision Rolled Ball Screw /
Ground Ball Screw for FA- SFA Series

滚珠丝杠
Ball Screw
技术数据
Technical Data

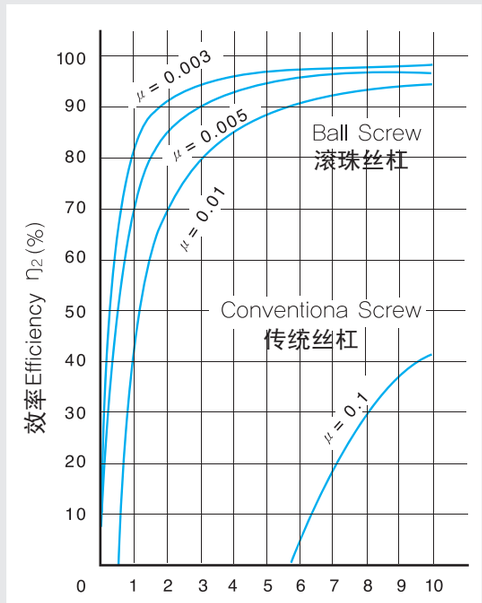
滚珠丝杠特性
Ball Screw Features

滚珠丝杠在驱动力矩较小时也能达到高效率，因为与导螺杆相比，滚珠在螺旋轴和滚珠螺母之间滚动可达到更低的摩擦系数。
A ball screw achieves high efficiency even if driving torque is low because balls roll between the screw shaft and ball nut to obtain a lower coefficient of friction than a leadscrew.

- 摩擦系数低、效率高
  Low Coefficient of Friction and High efficiency
- 速度与加速度快。
  High Velocity and Acceleration.
- 使用寿命长。
  Long Service Life Time.



（负荷角）
(Load Angle)



（负荷角）
(Load Angle)

[计算导程角]
[Calculating the Lead Angle]

$$\tan\beta = \frac{L}{\pi \cdot dp}$$

β : 导程角 Lead angle
L : 导程 Lead
dp : 滚珠圆直径 Ball circle diameter

结构与分类
Structures and Classification

滚珠丝杠由螺杆、螺母和滚珠构成，丝杆可按加工方式分类，滚珠螺母可按循环方式分类。
The ball screw is composed of a screw, a nut and balls, Screws are classified by processing and Ball Nuts are classified by recirculation method.

1. 螺杆轴 Screw Shaft

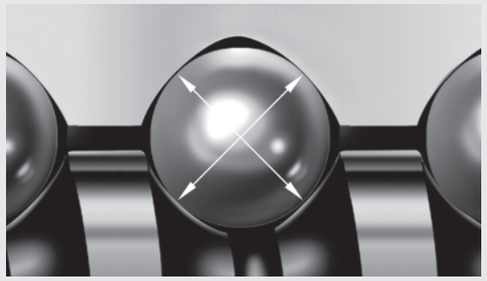
1-1. 按制造方法分类
Types by Manufacturing Method

丝杠有两种类型，即转造螺纹丝杠和研磨螺纹丝杠。
There are 2 types, Rolled and Ground Screw Threads.

转造丝杠是通过将螺纹轧制成丝杠制成的。研磨丝杠是通过将螺纹研磨成丝杠制成的。研磨丝杠通常更精确、运行更平稳。
A rolled screw is manufactured by roll forming a thread form into a rod. A Ground screw is manufactured by grinding the thread form into a rod. Generally ground screws are much more precise and smooth.

1-2. 圆弧槽与滚珠的接触结构
Circular-arc groove and ball contact structures

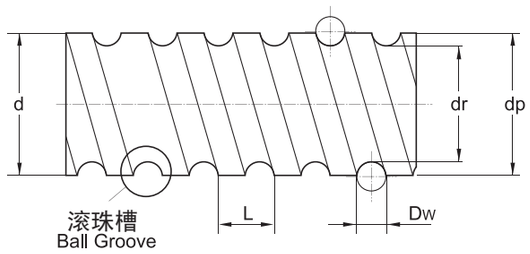
四点和两点接触结构
Four-point and Two-point Contact Structure



（滚珠与圆弧槽间的接触）
(Contact between ball and Circular-arc Groove)

滚珠丝杠
Ball Screw
技术数据
Technical Data

1-3. 螺杆轴结构
Structure of the Screw Shaft



[螺杆直径 : d]
[Screw Diameter : d]

指螺纹处轴外径。
It means screw shaft outer diameter.

[滚珠直径r : Dw]
[Ball Diameter : Dw]

滚珠直径
Ball diameter.

[滚珠中心-中心直径: dp]
[Ball center-to-center diameter : dp]

从螺纹内转动滚珠的中心量得的螺杆直径。该数值可用于计算最大容许速度和使用寿命。
The screw diameter measured from the center of balls rolling in the thread form. This number is necessary to calculate maximum permissible speed and lifetime.

[导程 : L]
[Lead : L]

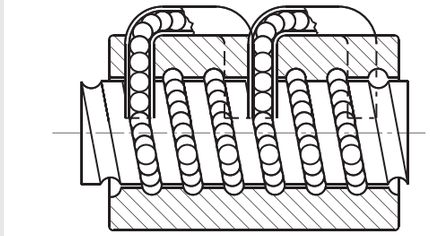
螺杆旋转一次完成的直线运动量。
The amount of linear movement achieved by 1 revolution of screw movement.

[螺杆轴螺纹内径 : dr]
[screw-shaft thread minor diameter : dr]

从螺纹底部量得的螺杆直径。
The diameter of the screw measured from the bottom of the thread form.

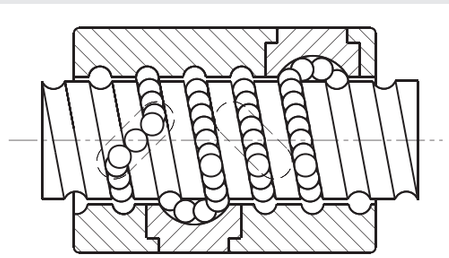
2. 螺母
Nuts

螺母可按循环方式分类。
The nut is classified by Recirculation method.



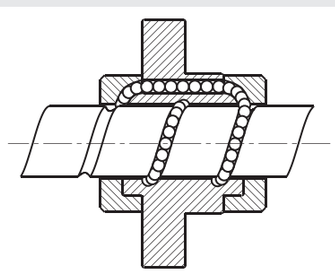
[回流管型]
[Return Tube Type]

最常见的类型。
The most common type.
回流板能使滚珠循环运动。
A return plate allows balls to recirculate.



[偏转器型]
[Deflector Type]

紧凑型，易于安装。
Compact type, Easy to install



[端盖型]
[End-cap Type]

此类螺母适合长导程运动。滚珠在端盖内循环运动。
These nut are suitable for long-lead type.
Balls are recirculating in an end-cap.

[内循环型]
[Inner-recirculation Type]

与端盖型类似。
Similar to End-cap type.

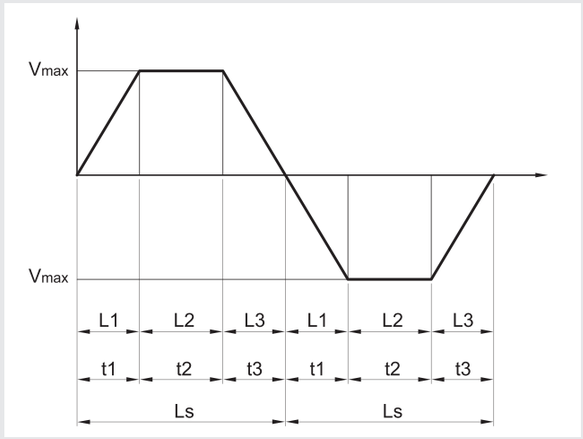
螺母内有一个滚珠循环通道，回流件能使滚珠循环运动。它适合高速运动。
There is a passage of balls circulating inside of the nut and return piece allows balls to circulate. It is suitable for high-speed.

滚珠丝杠
Ball Screw
技术数据
Technical Data

选择滚珠丝杠
Selecting a Ball screw

[滚珠丝杠要求]
[Ball Screw Requirements]

- 定位 Orientation : 水平/垂直 Horizontal / Vertical
- 有效载荷质量 Payload mass : m (kg)
- 直线轴承类型 Linear Bearing Type : 滚动/ 滑动 Rolling / Sliding
- 直线轴承的摩擦系数 Frictional coefficient of the Linear Bearing : μ
- 直线轴承 Linear Bearing Resistance : f (N)
- 轴向外部载荷 External load in the axial direction : F (N)
- 螺杆轴支撑方式 Support method of the screw shaft : 固定-自由/固定-支撑/固定-固定 fixed-free / fixed-supported / fixed-fixed
- 预期使用寿命 Desired service life time : Lh (h)
- 导程长度 Stroke length : Ls (mm)
- 运行速度 Operating Speed : Vmax (m/s)
- 加速时间 Acceleration time : t1 (sec)
- 匀速时间 Constant velocity time : t2 (sec)
- 减速时间 Deceleration time : t3 (sec)
- 停顿时间 Dwell time : td (sec)
- 加速度 Acceleration : a (m/s2)
- 加速距离 Acceleration distance : L1 (mm)
- 匀速距离 Constant velocity distance : L2 (mm)
- 减速距离 Deceleration distance : L3 (mm)
- 每分钟转数 Number of revolutions per minute : n (min-1)
- 定位精度 Positioning accuracy : - (mm)
- 重复定位精度 Positioning repeatability : - (mm)
- 间隙 Backlash : - (mm)



[电机要求]
[Motor Requirements]

- 电机类型 Motor Type : AC伺服电机/步进电机等 AC servomotor / stepping motor, etc.
- 电机额定转速 The rated speed of the motor : - (min-1) - (min)
- 电机惯性力矩 Moment of Inertia of the motor : Jm (kg.m2) Jm (kg.m^2)
- 电机分辨率 Motor resolution : - (反馈脉冲/转) - (pulse / rev)
- 减速比 Reduction ratio : A A

※参考
References

1) 加速度 Acceleration

$$a = \frac{V_{max}}{t1}$$

2) 加速距离 Acceleration distance

$$L1 = \frac{V_{max} \times t1 \times 1000}{2}$$

3) 匀速距离 Even speed distance

$$L2 = V_{max} \times t2 \times 1000$$

4) 减速距离 Deceleration distance

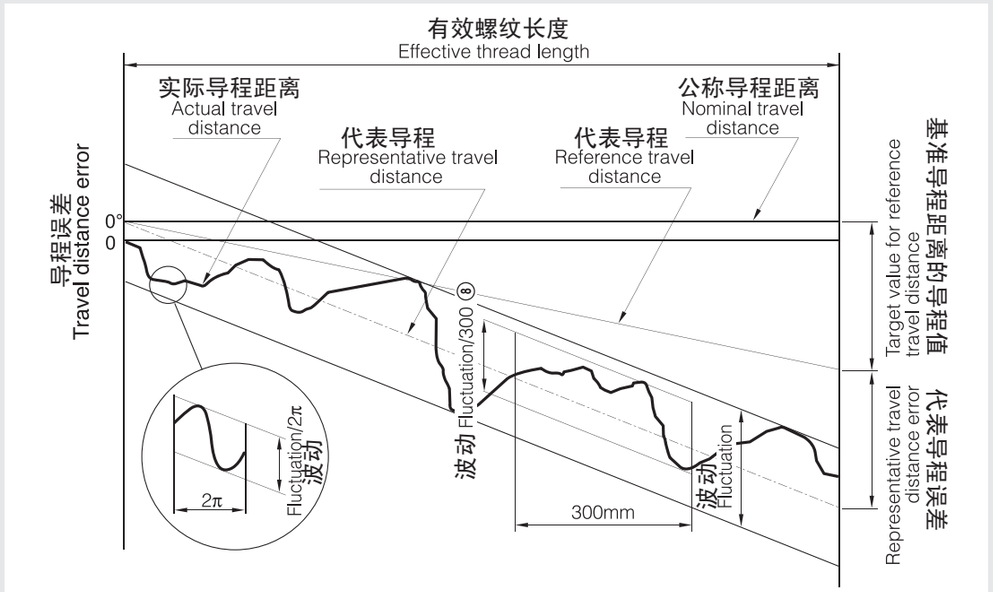
$$L3 = \frac{V_{max} \times t3 \times 1000}{2}$$

滚珠丝杠
Ball Screw
技术数据
Technical Data

导程精度[JIS B1192 – 1997]
Lead Accuracy [JIS B1192 - 1997]

JIS（JIS B1192-1997）标准规定，C0 ~ C5精度等级以直线性和方向性表示导程精度，精度等级C7~ C10以螺纹长度300㎜的累积导程误差表示其导程精度。

Accuracy grades C0 ~ C5 are described in the linearity and direction, and C7 ~ C10 in the travel distance error in relation to 300mm. By JIS (JIS B1192-1997)



[有效螺纹长度]
[Effective thread length]

有效螺纹长度是测量误差时采用的螺纹长度。

The Effective Thread Length is the length of thread over which Errors are measured.

[公称导程]
[Nominal travel distance]

公称导程是无误差的理想螺杆导程。

The Nominal Travel Distance is the ideal travel of screw without errors.

[基准导程]
[Reference Travel Distance]

为测量误差采用的公称导程的目标修正值。

Intended correcting value of the nominal travel distance in relation to the measured use.

[实际导程]
[Actual Travel distance]

实际测量的导程距离。

The actual measured travel distance

[代表导程]
[Representative Travel Distance]

使用实际导程曲线的最小平方法计算的近似实际导程的直线。

A straight line approximating the actual travel that is calculated by using the least squares method of the actual travel distance curve.

[代表导程误差]
[Representative Travel Distance Error]

代表导程与基准导程之差。

Difference between the representative travel distance and the reference travel distance.

[波动]
[Fluctuation]

在平行于代表导程的两条直线之间测得的实际导程最大误差。

The maximum error of the actual travel measured as the distance between two straight lines drawn in parallel with the representative travel distance.

[波动 / 300]
[Fluctuation / 300]

既定螺纹长度（300㎜）上的代表导程偏差。

Deviation of travel from representative over a given thread length (300mm)

[波动 2π]
[Fluctuation / 2π]

螺杆轴一次旋转的代表导程偏差。

Deviation of travel from representative over one rotation of the screw shaft.

[基准导程目标值]
[Target Value for Reference Travel Distance]

表示基准导程的目标值。

Indicating a target value for the reference travel distance.

滚珠丝杠
Ball Screw
技术数据
Technical Data

[导程精度容许误差]
[Permissible Lead Accuracy Errors]

（单位Unit : ㎛）

螺纹长度 Thread Length (mm)		精度等级 Precision Grade													
		C0		C1		C2		C3		C5		C7		C10	
自 From	To	±E	e	±E	e	±E	e	±E	e	±E	e	±E	e	±E	e
-	100	3	3	3.5	5	5	7	8	8	18	18				
100	200	3.5	3	4.5	5	7	7	10	8	20	18				
200	315	4	3.5	6	5	8	7	12	8	23	18				
315	400	5	3.5	7	5	9	7	13	10	25	20				
400	500	6	4	8	5	10	7	15	10	27	20				
500	630	6	4	9	6	11	8	16	12	30	23				
630	800	7	5	10	7	13	9	18	13	35	25				
800	1000	8	6	11	8	15	10	21	15	40	27				
1000	1250	9	6	13	9	18	11	24	16	46	30	±50/300		±210/300	
1250	1600	11	7	15	10	21	13	29	18	54	35				
1600	2000	-	-	18	11	25	15	35	21	65	40				
2000	2500	-	-	22	13	30	18	41	24	77	46				
2500	3150	-	-	26	15	36	21	50	29	93	54				
3150	4000	-	-	30	18	44	25	60	35	115	65				
4000	5000	-	-	-	-	52	30	72	41	140	77				
5000	6300	-	-	-	-	65	36	90	50	170	93				
6300	8000	-	-	-	-	-	-	110	60	210	115				
8000	10000	-	-	-	-	-	-	-	-	260	140				

＊ ±E：代表导程误差
＊ ±E: Representative travel distance error

＊ e：波动
＊ e: Fluctuation

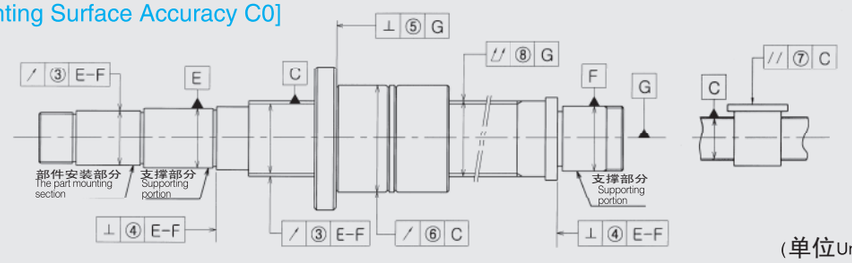
[导程精度容许值]
[Permissible Value of the Lead Accuracy]

（单位Unit : ㎛）

波动 Fluctuation	C0	C1	C2	C3	C5	C7	C10
ν / 300	3.5	5	7	8	18	50	210
ν / 2π	2.5	4	5	6	8	-	-

安装面精度
Mounting Surface Accuracy

[安装面精度C0]
[Mounting Surface Accuracy C0]



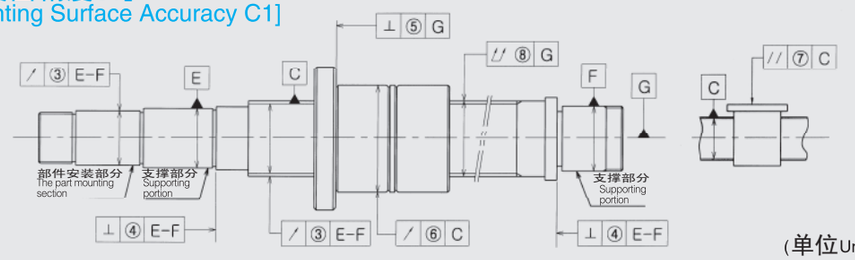
（单位Unit : ㎛）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	3	2	-	20	5	5	-	50	5
8	12	4	2	20	32	5	6	50	100	7
12	20	4	2	32	50	6	7	100	200	-
20	32	5	2	50	80	7	8			
32	50	6	2	80	125	7	9			
50	80	7	3	125	160	8	10			
80	125	-	-	160	200	-	-			
				200	250	-	-			

轴外径螺杆直径轴长度 Screw shaft outer diameter / Screw shaft length		大于 Above	-	8	12	20	32	50	80
		小于 Less	8	12	20	32	50	80	125
大于 Above	小于 Less								
-	125		0.015	0.015	0.015				
125	200		0.025	0.020	0.020	0.015			
200	315		0.035	0.025	0.020	0.020			
315	400			0.035	0.025	0.020	0.015		
400	500			0.045	0.035	0.025	0.020		
500	630			0.050	0.040	0.030	0.020	0.015	
630	800				0.050	0.035	0.025	0.020	
800	1000				0.065	0.045	0.030	0.025	
1000	1250				0.085	0.055	0.040	0.030	
1250	1600				0.110	0.070	0.050	0.040	
1600	2000					0.095	0.065	0.045	
2000	2500								
2500	3150								
3150	4000								
4000	5000								
5000	6300								
6300	8000								
8000	10000								

滚珠丝杠
Ball Screw
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[安装面精度C1]
[Mounting Surface Accuracy C1]

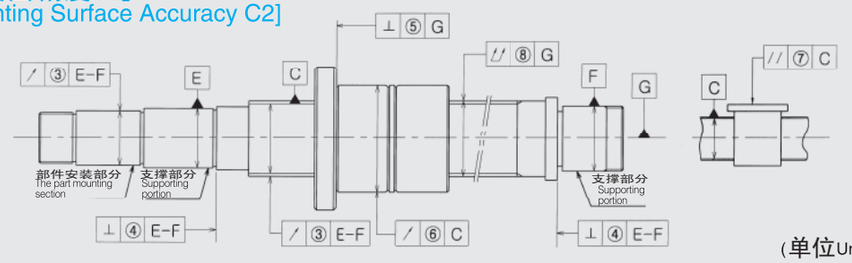


（单位Unit：㎛）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	5	3	-	20	6	6	-	50	6
8	12	5	3	20	32	6	7	50	100	8
12	20	6	3	32	50	7	8	100	200	10
20	32	7	3	50	80	8	10			
32	50	8	3	80	125	9	12			
50	80	9	4	125	160	10	13			
80	125	10	4	160	200	11	16			
				200	250	12	18			

轴外径螺杆直径轴长度 Screw shaft length / Screw shaft outer diameter		大于 Above	-	8	12	20	32	50	80
		小于 Less	8	12	20	32	50	80	125
大于 Above	小于 Less								
-	125		0.020	0.020	0.015				
125	200		0.030	0.025	0.020	0.015			
200	315		0.040	0.030	0.025	0.020			
315	400		0.045	0.040	0.030	0.025	0.020		
400	500			0.050	0.040	0.030	0.025		
500	630			0.060	0.045	0.035	0.025	0.020	
630	800				0.060	0.040	0.030	0.025	
800	1000				0.075	0.055	0.040	0.030	0.025
1000	1250				0.095	0.065	0.045	0.035	0.030
1250	1600				0.130	0.085	0.060	0.045	0.035
1600	2000					0.120	0.080	0.055	0.040
2000	2500						0.100	0.070	0.050
2500	3150						0.130	0.090	0.060
3150	4000							0.120	0.080
4000	5000								
5000	6300								
6300	8000								
8000	10000								

[安装面精度C2]
[Mounting Surface Accuracy C2]

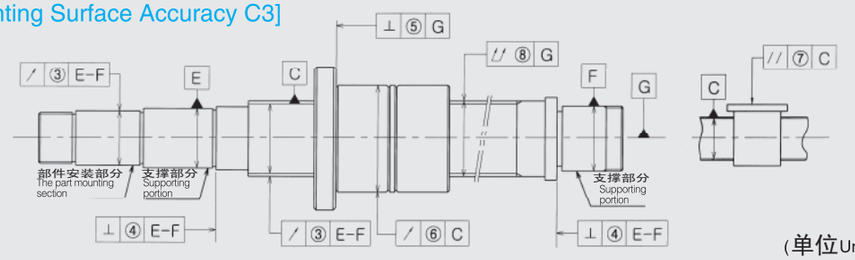


（单位Unit：㎛）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	7	4	-	20	7	8	-	50	7
8	12	7	4	20	32	7	9	50	100	9
12	20	8	4	32	50	8	10	100	200	12
20	32	9	4	50	80	9	13			
32	50	10	4	80	125	11	16			
50	80	11	5	125	160	12	18			
80	125	13	5	160	200	13	21			
				200	250	14	23			

轴外径螺杆直径轴长度 Screw shaft length / Screw shaft outer diameter		大于 Above	-	8	12	20	32	50	80
		小于 Less	8	12	20	32	50	80	125
大于 Above	小于 Less								
-	125		0.023	0.023	0.018				
125	200		0.033	0.030	0.023	0.018			
200	315		0.045	0.035	0.028	0.025			
315	400		0.053	0.045	0.035	0.030	0.023		
400	500			0.058	0.045	0.035	0.028		
500	630			0.065	0.050	0.040	0.030	0.025	
630	800				0.065	0.050	0.035	0.030	
800	1000				0.085	0.060	0.045	0.035	0.028
1000	1250				0.110	0.075	0.055	0.040	0.033
1250	1600				0.145	0.100	0.070	0.050	0.038
1600	2000					0.130	0.090	0.065	0.045
2000	2500						0.110	0.080	0.055
2500	3150						0.145	0.100	0.070
3150	4000						0.200	0.135	0.090
4000	5000							0.180	0.115
5000	6300								
6300	8000								
8000	10000								

[安装面精度C3]
[Mounting Surface Accuracy C3]



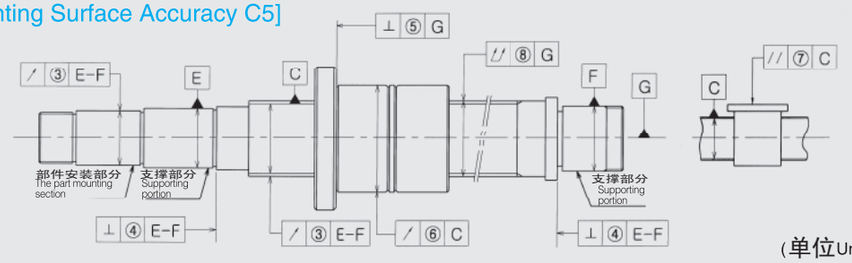
（单位Unit：㎛）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	8	4	-	20	8	9	-	50	8
8	12	8	4	20	32	8	10	50	100	10
12	20	9	4	32	50	8	12	100	200	13
20	32	10	4	50	80	10	15			
32	50	12	4	80	125	12	20			
50	80	13	5	125	160	13	22			
80	125	15	6	160	200	14	25			
				200	250	15	28			

轴外径螺杆直径轴长度 Screw shaft length / Screw shaft outer diameter		大于 Above	-	8	12	20	32	50	80
		小于 Less	8	12	20	32	50	80	125
大于 Above	小于 Less								
-	125		0.025	0.025	0.020				
125	200		0.035	0.035	0.025	0.020			
200	315		0.050	0.040	0.030	0.030			
315	400		0.060	0.050	0.040	0.035	0.025		
400	500			0.065	0.050	0.040	0.030		
500	630			0.070	0.055	0.045	0.035	0.030	
630	800				0.070	0.055	0.040	0.035	
800	1000				0.095	0.065	0.050	0.040	0.030
1000	1250				0.120	0.085	0.060	0.045	0.035
1250	1600				0.160	0.110	0.075	0.055	0.040
1600	2000					0.140	0.095	0.070	0.050
2000	2500						0.120	0.085	0.060
2500	3150						0.160	0.110	0.075
3150	4000						0.220	0.150	0.100
4000	5000							0.200	0.130
5000	6300								
6300	8000								
8000	10000								

滚珠丝杠
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[安装面精度C5]
[Mounting Surface Accuracy C5]



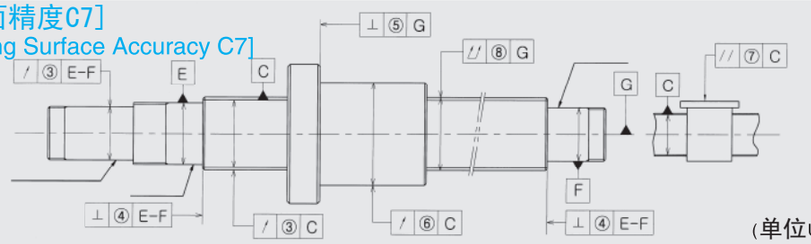
（单位Unit：㎛）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	10	5	-	20	10	12	-	50	10
8	12	11	5	20	32	10	12	50	100	13
12	20	12	5	32	50	11	15	100	200	17
20	32	13	5	50	80	13	19			
32	50	15	5	80	125	15	27			
50	80	17	7	125	160	17	30			
80	125	20	8	160	200	18	34			
				200	250	20	38			

轴外径螺杆直径轴长度 Screw shaft length / Screw shaft outer diameter		大于 Above	-	8	12	20	32	50	80
		小于 Less	8	12	20	32	50	80	125
大于 Above	小于 Less								
-	125		0.035	0.035	0.035				
125	200		0.050	0.040	0.040	0.035			
200	315		0.065	0.055	0.045	0.040			
315	400		0.075	0.065	0.055	0.045	0.035		
400	500			0.080	0.060	0.050	0.045		
500	630			0.090	0.075	0.060	0.050	0.040	
630	800				0.090	0.070	0.055	0.045	
800	1000				0.120	0.085	0.065	0.050	0.045
1000	1250				0.150	0.100	0.075	0.060	0.050
1250	1600				0.190	0.130	0.095	0.070	0.055
1600	2000					0.170	0.120	0.085	0.065
2000	2500						0.150	0.110	0.080
2500	3150						0.200	0.140	0.095
3150	4000						0.260	0.180	0.120
4000	5000							0.240	0.160
5000	6300							0.310	0.210
6300	8000								0.280
8000	10000								0.370

滚珠丝杠
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[安装面精度C7]
[Mounting Surface Accuracy C7]

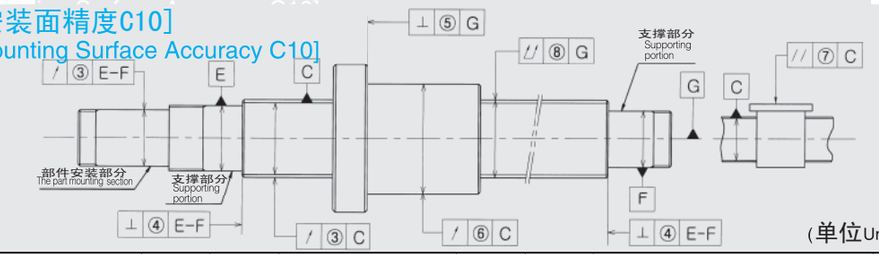


（单位Unit : μm）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	14	7	-	18	14	20	-	50	17
8	12	14	7	8	30	14	20	50	100	17
12	20	14	7	30	50	18	30	100	200	30
20	32	20	7	50	80	18	30	200	400	30
32	50	20	8	80	120	20	40			
50	80	20	10	120	150	20	40			
80	125	30	11	150	180	25	50			
125	200	30	13	180	250	25	50			
				250	300	25	50			

轴外径螺杆直径轴长度 Screw shaft outer diameter / Screw shaft length		大于 Above	-	8	12	20	32	50	80	125
		小于 Less	8	12	20	32	50	80	125	200
大于 Above	小于 Less									
-	125		0.060	0.055	0.055					
125	200		0.075	0.065	0.060	0.055				
200	315		0.100	0.080	0.070	0.060				
315	400			0.100	0.080	0.070	0.065			
400	500			0.120	0.095	0.080	0.070			
500	630			0.150	0.110	0.090	0.075	0.065		
630	800				0.140	0.100	0.085	0.070		
800	1000				0.170	0.130	0.100	0.080	0.070	
1000	1250				0.210	0.150	0.120	0.090	0.075	
1250	1600				0.270	0.190	0.140	0.110	0.085	0.070
1600	2000					0.250	0.180	0.130	0.100	0.080
2000	2500					0.320	0.220	0.160	0.120	0.090
2500	3150						0.280	0.200	0.140	0.110
3150	4000						0.380	0.260	0.180	0.130
4000	5000						0.510	0.340	0.230	0.160
5000	6300							0.440	0.300	0.200
6300	8000							0.600	0.400	0.270
8000	10000								0.530	0.350
10000	12500								0.700	0.460

[安装面精度C10]
[Mounting Surface Accuracy C10]



（单位Unit : μm）

轴外径 Shaft outer diameter		③	④	螺母直径 Nut diameter		⑤	⑥	安装部分基准长度 Reference length of mounting section		⑦
大于 Above	小于 Less			大于 Above	小于 Less			大于 Above	小于 Less	
-	8	40	10	-	18	20	40	-	50	30
8	12	40	10	8	30	20	40	50	100	30
12	20	40	10	30	50	30	60	100	200	50
20	32	60	10	50	80	30	60	200	400	50
32	50	60	12	80	120	40	80			
50	80	60	14	120	150	40	80			
80	125	80	16	150	180	50	100			
125	200	80	18	180	250	50	100			
				250	300	50	100			

轴外径螺杆直径轴长度 Screw shaft outer diameter / Screw shaft length		大于 Above	-	8	12	20	32	50	80	125
		小于 Less	8	12	20	32	50	80	125	200
大于 Above	小于 Less									
-	125		0.100	0.095	0.090					
125	200		0.140	0.120	0.110	0.095				
200	315		0.201	0.160	0.130	0.110				
315	400			0.210	0.060	0.130	0.110			
400	500			0.270	0.200	0.160	0.130			
500	630			0.350	0.250	0.190	0.150	0.120		
630	800			0.460	0.320	0.230	0.170	0.140		
800	1000				0.420	0.300	0.220	0.170	0.130	
1000	1250				0.550	0.380	0.270	0.200	0.150	
1250	1600				0.730	0.500	0.340	0.250	0.180	0.150
1600	2000				1.000	0.690	0.460	0.320	0.230	0.180
2000	2500					0.930	0.610	0.420	0.290	0.210
2500	3150					1.300	0.820	0.550	0.380	0.270
3150	4000						1.100	0.750	0.500	0.340
4000	5000						1.600	1.000	0.680	0.460
5000	6300							1.400	0.920	0.600
6300	8000							2.000	1.300	0.830
8000	10000								1.800	1.100
10000	12500								2.500	1.600

滚珠丝杠
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导程精度[DIN6905]
Lead Accuracy [DIN6905]

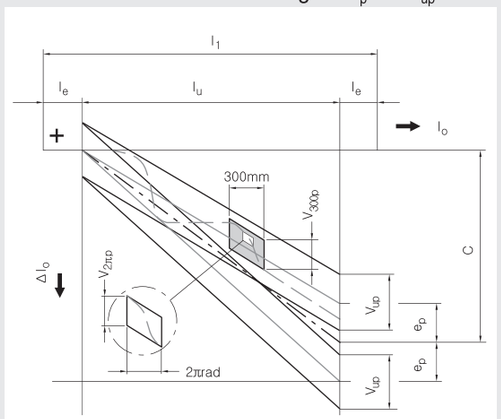
根据DIN6905标准规定，可通过“P-定位类”滚珠丝杠和“T-传送类”滚珠丝杠的公差类别指定导程精度。

Lead accuracy according to DIN6905 standard is specified by tolerance classes which are P-Positioning Class Ball Screws and T-Transport Class Ball screws.

[“P-定位类”滚珠丝杠]
[P-Positioning Class Ball Screws]

有效长度上的最大误差 $= e_p + 1/2V_{up} + C$

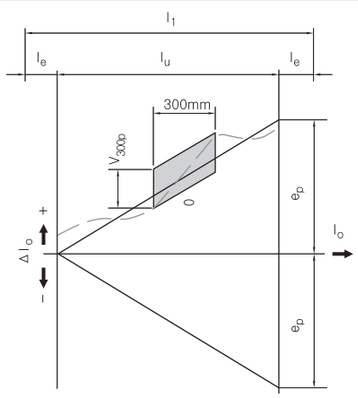
Maximum error over useful length $= e_p + 1/2V_{up} + C$



[“T-传送类”滚珠丝杠]
[T-Transport Class Ball Screws]

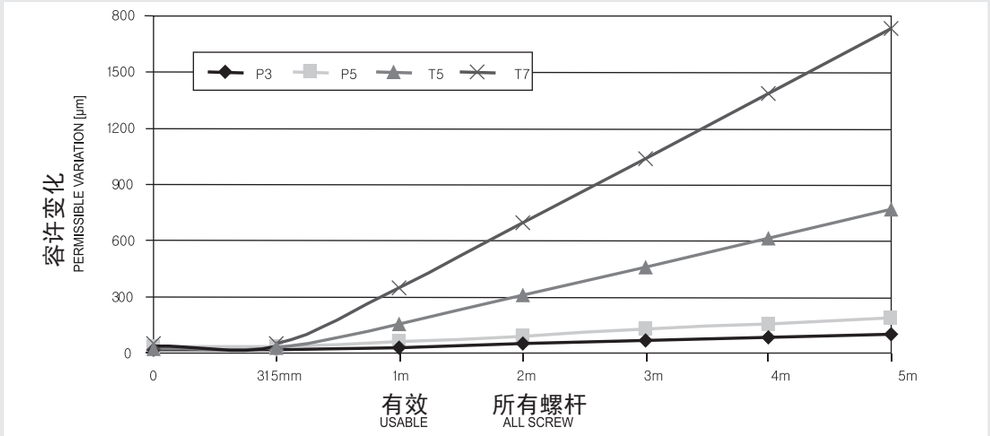
有效长度上的最大误差 $= e_p + 1/2V_{up} + C$

Maximum error over useful length $= e_p + 1/2V_{up} + C$



- l_o = 导程 Travel distance
- l_1 = 轴向螺纹长度 Axial thread length
- Δl_o = 导程公差 The tolerance of travel distance
- l_u = 实际导程 Actual travel distance
- l_e = 导程超量 Exceed travel distance
- C = 实际导程补偿（标准 C=0） Compensation for actual travel distance (Standard: C=0)
- e_p = 有效导程公差 Tolerance on useful travel
- V_{up} = 有效导程lu内的导程容许偏差 Permissible travel variation within useful travel l_u
- V_{300p} = 300mm导程内的导程容许偏差 Permissible travel variation within 300mm travel
- $V_{2\pi p}$ = 2π 导程内的导程容许偏差 Permissible travel variation within 2π travel

[有效长度上的累积导程变化]
[Cumulative lead variation over usable length]



公差 Tolerance Class	导程精度 Lead Accuracy V_{300P}	长导程上的容许导程变化 Permissible cumulative travel variation over long distance															
		l_0 >	-	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	
		(mm) ≤	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	5000	6300	
P3	±12μm/300mm	e_p(μm)	12	13	15	16	18	21	24	29	35	41	50	62	76	-	
		V_{up}(μm)	12	12	13	14	16	17	19	22	25	29	34	41	49	-	
P5	±23μm/300mm	e_p(μm)	23	25	27	30	35	40	46	54	65	77	93	115	140	170	
		V_{up}(μm)	23	25	26	29	31	35	39	44	51	59	69	82	99	119	
T5	±12μm/300mm	V_{up}(μm)	23	$=2xl_u/300xV_{300P}$													
T7	±52μm/300mm	V_{up}(μm)	52	$=2xl_u/300xV_{300P}$													

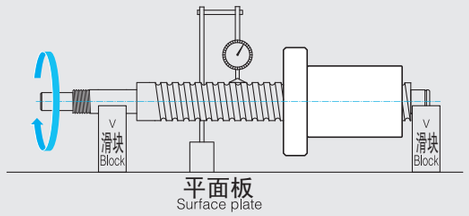
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测量安装面精度
Measuring the Mounting Surface Accuracy

(1) 螺杆轴的总体径向跳动
Overall Radial Runout of the Screw Shaft Axis

用V形滑块支撑螺杆轴的支撑部分。将测量仪器放在螺杆轴的圆周上，在螺杆轴旋转一次时，读取千分表在几个点上测得的最大误差。

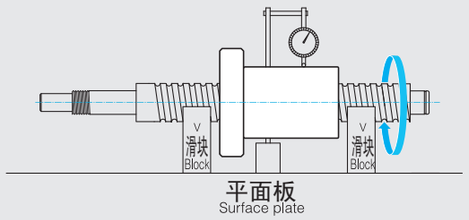
Support the supporting part of the screw shaft with V blocks. Set a measuring instrument on the circumference of the screw shaft, and find the largest difference on the dial gauge at several points when turning the screw shaft by one rotation.



(2) 随螺杆轴变化的螺母圆周的径向跳动
Radial Runout of the Nut Circumference according to the screw shaft Axis

在螺母附近用V形滑块支撑螺杆轴的螺纹。将测量仪器放在螺母圆周上，在螺母旋转（螺杆不旋转）一次时，读取千分表上显示的最大误差。

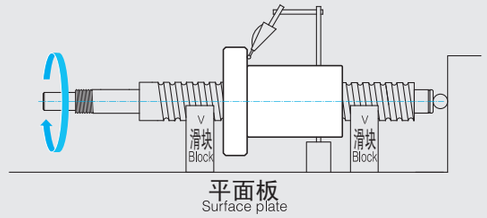
Support the thread of the screw shaft with V blocks near the nut. Set a measuring instrument on the circumstance of the nut, and find the largest difference on the dial gauge when turning only the nut by one rotation (without turning the screw shaft).



(3) 螺杆轴法兰安装面与螺杆轴的垂直度
Perpendicularity of the Flange Mounting Surface of the screw shaft to the screw shaft axis

在螺母附近用V形滑块支撑螺杆轴的螺纹。将测量仪器放在螺杆轴的支撑端，在螺杆轴和螺母同时旋转一次时，读取千分表上显示的最大误差。

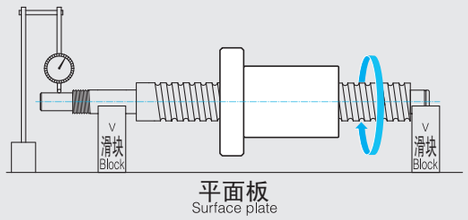
Support the thread of the screw shaft with V blocks near the nut. Set a measuring instrument on the screw shaft's supporting portion end, and find the largest difference on the dial gauge when turning the screw shaft and the nut at the same time by one rotation at the same time.



(4) 随螺杆轴变化的部件安装部分的径向跳动
Runout of the Part Mounting section according to the Screw shaft

将测量仪器放在部件安装部分上，在螺杆轴旋转一次时读取千分表上显示的最大误差。

Set a measuring instrument on the part mounting section, and find the largest difference on the dial gauge when turning the screw shaft by one rotation.

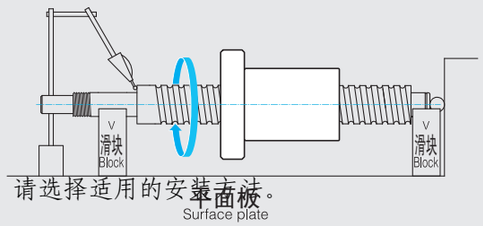


滚珠丝杠
Ball Screw
技术数据
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(5) 螺杆轴的支撑端与支撑轴的垂直度。
Perpendicularity of the supporting portion End of the screw shaft to the supporting portion axis.

将测量仪器放在螺杆轴的支撑端上，在螺杆轴旋转一次时读取千分表上显示的最大误差。

Set a measuring instrument on the screw shaft's supporting portion end, and read the largest difference on the dial gauge when turning the screw shaft by one rotation.



滚珠丝杠有四种安装方法。请选择适用的安装方法。

容许轴向载荷和旋转次数应视具体安装方法而定。

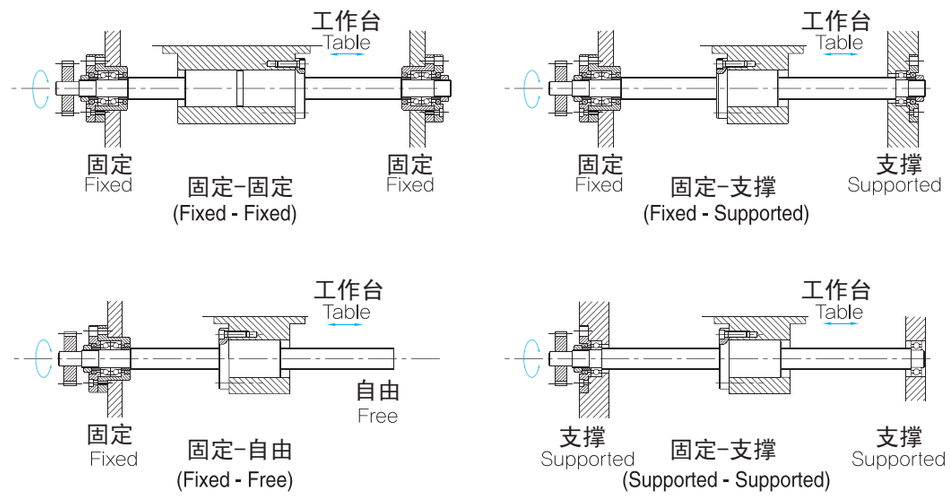
安装方法
Mounting Method

滚珠丝杠有四种安装方法。请选择适用的安装方法。

There four mounting methods for the Ball Screw. Select appropriate mounting method.

容许轴向载荷和旋转次数应视具体安装方法而定。

Permissible Axial load and numbers of rotation vary according to the mounting method.



[安装方法与安装条件]
[Mounting Method Based on Conditions]

安装 **Mounting**	条件 **Conditions**
固定-固定 Fixed - Fixed	高载荷、高速运转、长导程 High load and speed, Long distance
固定-支撑 Fixed - Supported	中载荷、中速运转、标准导程 Medium load and speed, Normal distance
固定-自由 Fixed - Free	中载荷、低速运转、短导程 Medium load, low speed, Short distance
支撑-支撑 Supported - Supported	低载荷、低速运转、短导程 Low load and speed, Short distance

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预载
Preload

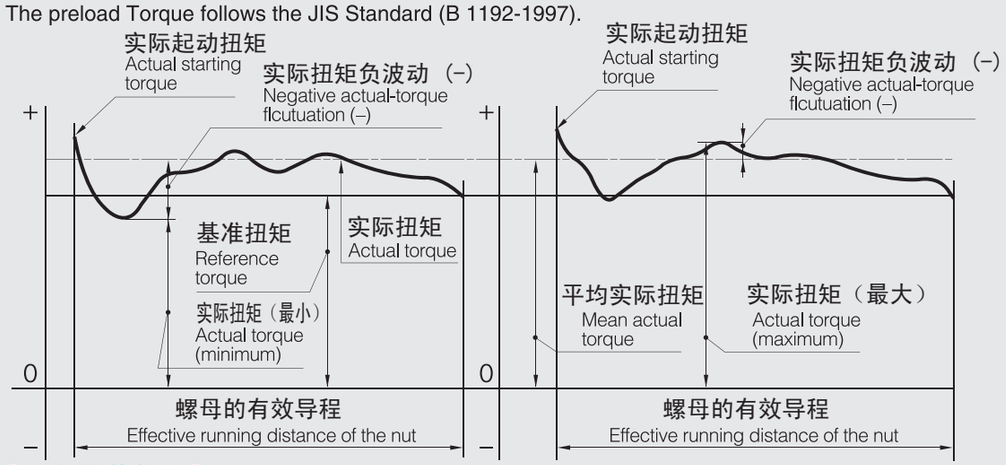
目的是消除轴向间隙，最大限度减少轴向载荷下的位移。
In order to remove the axial clearance and minimize the displacement under an axial load.
要进行高度精确的定位，通常需要进行预载。
For a highly accurate positioning, a preload is generally provided.

[间隙]
[Clearance]

要了解轴向间隙，请参见规范。
For the Axial clearance, refer to the specifications.

预载扭矩 Preload Torque

预载扭矩符合JIS标准（B 1192-1997）的要求。
The preload Torque follows the JIS Standard (B 1192-1997).



[动态预载扭矩]
[Dynamic Preload Torque]

旋转预载螺母（无外部载荷）内的螺杆轴所需的扭矩。
The torque necessary to rotate a screw shaft in a preloaded nut (without external load).

[实际扭矩]
[Actual Torque]

测得的旋转滚珠丝杠所需的扭矩。
Measured torque required to rotate a ball screw.

[扭矩波动]
[Torque Fluctuation]

旋转预载螺母内的螺杆所需的扭矩与标准扭矩之间的差别。
The variation of torque required to rotate a screw in a preloaded nut compared to the nominal torque.

[基准扭矩]
[Reference Torque]

设为目标值的动态预载扭矩。
A dynamic preload torque set as a target.

[计算基准扭矩]
[Calculating the Reference Torque]

参见下列等式。
Refer to an equation below.

$$Tp = 0.05(\tan\beta)^{-0.5}\frac{Fao \cdot L}{2\pi}$$

Tp ：基准扭矩 Reference torque (N·mm)
β ：导程角 Lead angle
Fao：施加预载 Applied preload (N)
L ：载荷 Load (mm)

[计算基准扭矩]
[Calculating the Torque Fluctuation]

用螺纹长度除以螺纹处轴外径即可求得扭矩波动。
Divide thread length by screw shaft outer diameter gives the torque fluctuation.
扭矩波动的公差范围如下表所示。
Tolerance range in torque fluctuation as the table below.

基准扭矩 Reference torque N · mm		有效螺纹长度 Effective thread length									
		4000mm或更短 4000m or less								44000mm以上、10000mm或更短 Above 4,000m and 10,000m or less	
		螺纹长度 Thread length / 螺纹处轴外径 Screw shaft outer diameter ≤ 40				40 < 螺纹长度 Thread length / 螺纹处轴外径 Screw shaft outer diameter < 60				-	
		Accuracy grades				Accuracy grades				Accuracy grades	
Above	Less	C0	C1	C2, C3	C5	C0	C1	C2, C3	C5	C2, C3	C5
200	400	±35%	±40%	±45%	±55%	±45%	±45%	±55%	±65%	-	-
400	600	±25%	±30%	±35%	±45%	±38%	±38%	±45%	±50%	-	-
600	1000	±20%	±25%	±30%	±35%	±30%	±30%	±35%	±40%	±40%	±45%
1000	2500	±15%	±20%	±25%	±30%	±25%	±25%	±30%	±35%	±35%	±40%
2500	6300	±10%	±15%	±20%	±25%	±20%	±20%	±25%	±30%	±30%	±35%
6300	10000	-	-	±15%	±20%	-	-	±20%	±25%	±25%	±30%

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[实例]
[Example]
当螺杆轴长度1500mm、轴直径31.6mm、滚珠圆直径32mm、导程10mm、预载2000N和精度C7时，预载扭矩的计算方法如下。
With a screw shaft length of 1500mm , shaft diameter of 31.6mm, ball circle diameter of 32mm, lead of 10mm, preload of 2000N, and Accuracy of C7, the preload torque is calculated as follows.

(1) 计算基准扭矩
Calculating the Reference Torque

$$\tan\beta = \frac{L}{\pi \cdot dp} = \frac{10}{\pi \cdot 32} = 0.0995$$

$$Tp = 0.05(\tan\beta)^{-0.5}\ \frac{Fao \cdot L}{2\pi}$$

$$= 0.05 \times (0.0995)^{-0.5}\ \frac{2000 \times 10}{2\pi}$$

$$= 504.8\ N \cdot mm$$

β ：导程角 Lead angle
L ：导程 Lead (=10mm)
dp ：滚珠圆直径 Ball circle diameter (=32mm)
Fao：预载 Preload (=2000N)
Tp ：基准扭矩 The reference torque

(2) 计算扭矩波动
Calculating the Torque Fluctuation

$$\frac{\text{螺纹长度 Thread length}}{\text{螺纹处轴外径 Screw shaft outer diameter}} = \frac{1500}{31.6} = 47.4$$

结果在40和60之间、有效螺纹长度4000mm或更短、精度等级C5，扭矩波动的计算方法如下。
The result is between 40 and 60, effective thread length, 4000mm or less and accuracy grade C5, the torque fluctuation is calculated as below.

$$504.8 \times (1 \pm 0.5) = 252.4 \sim 757.2\ N \cdot mm$$

容许轴向载荷
Permissible Axial Load

[螺杆轴的扭曲载荷]
[Buckling Load on the Screw Shaft]

正确选择螺杆轴很重要，这样能确保在施加轴向载荷时，螺杆轴不会扭曲。
It is important to choose a screw shaft so that it will not buckle when the maximum axial load is applied.

$$\text{扭曲载荷 Buckling load (N)} = \frac{\eta_1 \cdot \pi \cdot E \cdot I}{La^2} \times S$$

$$= \eta_2 \frac{dr^4}{La^2} 10^4$$

La ：两个安装面之间的距离（mm） Distance between two mounting surfaces (mm)
E ：杨氏模量（2.06 x 105 N/mm2） Young's modulus (2.06 x 10^5 N/mm^2)
dr ：螺杆轴的曲率半径（mm） Radius of curvature of the screw shaft (mm)
S ：安全系数（标准0.5） Safety factor (Normal 0.5)

* I：螺杆轴的最小几何惯性矩(mm^4)
* I : Minimum geometrical moment of inertia of the shaft (mm^4)

$$I = \frac{\pi}{64} dr^4$$

固定-自由 Fixed - Free	: $\eta_1 = 0.25$	$\eta_2 = 1.3$
固定-支撑 Fixed - Supported	: $\eta_1 = 2$	$\eta_2 = 10$
固定-固定 Fixed - Fixed	: $\eta_1 = 4$	$\eta_2 = 20$

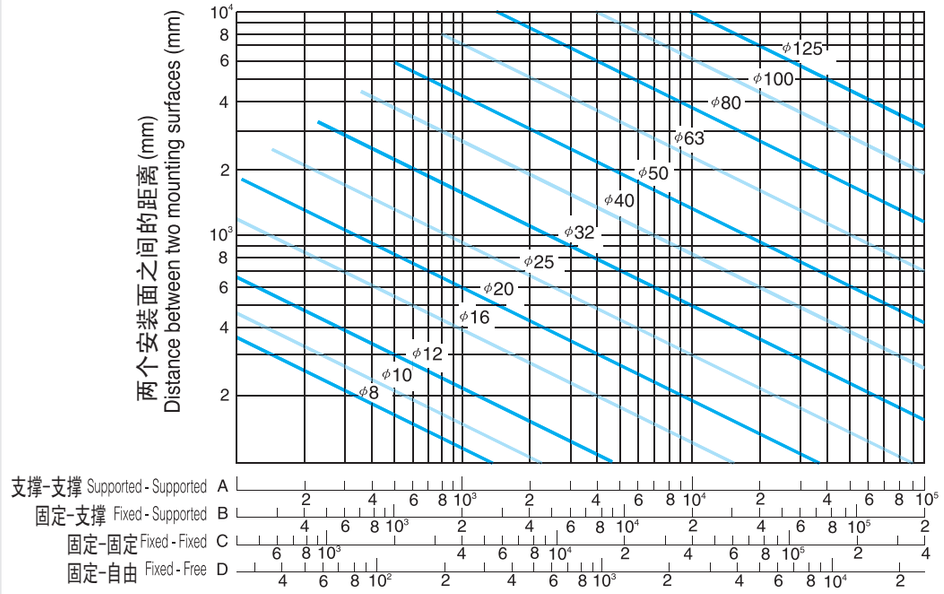
[螺杆轴的容许拉压载荷]
[Permissible Tensile Compressive Load on the Screw shaft]

不仅要考虑扭曲载荷，还要根据螺杆轴上的屈服应力考虑容许拉压载荷。
It is necessary to consider not only the buckling load but also the permissible tensile compressive load according to the yielding stress on the screw shaft.

$$\text{容许拉压载荷 Permissible tensile compressive load (N)} = \sigma \frac{\pi}{4} dr^4 = 116 dr^2$$

σ ：容许拉压应力(147Mpa) Permissible tensile compressive stress (147Mpa)
dr ：容许拉压应力(mm) Screw-shaft thread minor diameter (mm)

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（容许拉压载荷图解）
(Permissible tensile compressive load diagram)

容许转速
Permissible Rotational Speed

[螺杆轴的临界转速]
[Critical Speed of the screw Shaft]

当转速增加时，螺杆轴的固有频率可能导致滚珠丝杠无法运转。因此必须使用下列临界转速（共振点）。
When the rotational speed increases, the ball screw might be unable to operate due to the screw shaft's natural frequency. It is important to use below the dangerous speed (resonance point)

临界转速 Dangerous speed $(min^{-1}) = \frac{60 \cdot \lambda_1^2}{2\pi \cdot La^2} \times \sqrt{\frac{E \times 10^3 \cdot I}{\gamma \cdot A}} \times S$

$= \lambda_2 \frac{dr^4}{La^2} \cdot 10^7$

La ： 两个安装面之间的距离（mm）
Distance between two mounting surfaces (mm)

E ： 杨氏模量 (2.06×10^5 N/mm²)
Young's modulus (2.06×10^5 N/mm²)

dr ： 螺杆轴螺纹内径（mm）
screw-shaft thread minor diameter (mm)

S ： 安全系数（标准0. 8）
Safety factor (Normal 0.8)

γ ： 密度（比重）
Density (Specific gravity)
(7.85×10^{-6} kg/mm³)

* I : 螺杆轴的最小几何惯性矩 (mm⁴)
Minimum geometrical moment of inertia of the shaft (mm⁴)

$$I = \frac{\pi}{64} dr^4$$

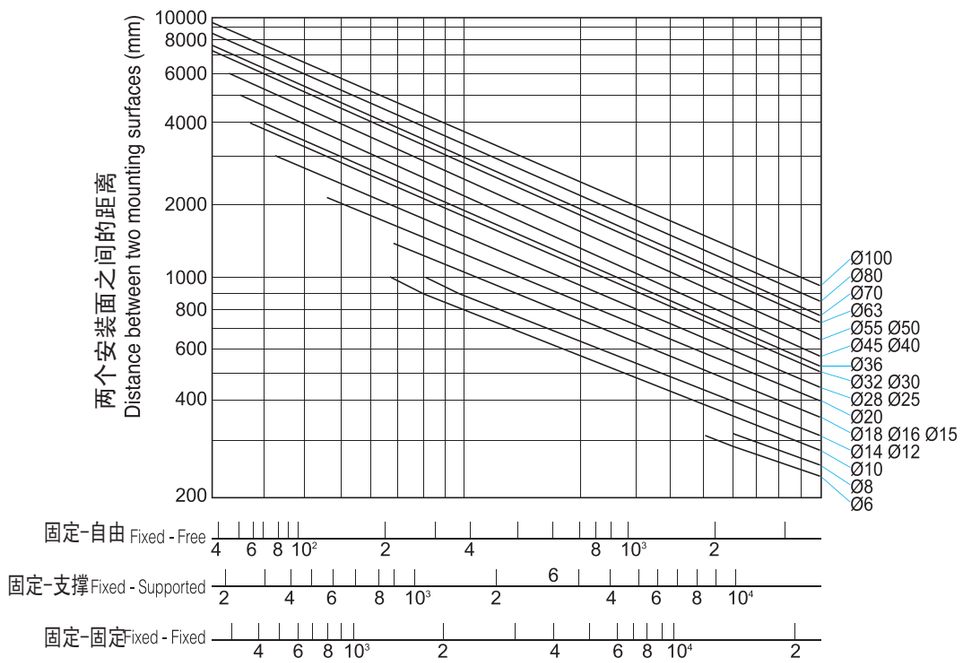
* A : 螺杆轴横截面积 (mm²)
Screw shaft cross-sectional area (mm²)

$$A = \frac{\pi}{4} dr^2$$

* λ_1, λ_2 : 与安装方法对应的系数
* λ_1, λ_2 : Factor according to the mounting method

固定-自由 Fixed - Free	: $\lambda_1 = 1.875$	$\lambda_2 = 3.4$
支撑-支撑 Supported - Supported	: $\lambda_1 = 3.142$	$\lambda_2 = 9.7$
固定-支撑 Fixed - Supported	: $\lambda_1 = 3.927$	$\lambda_2 = 15.1$
固定-固定 Fixed - Fixed	: $\lambda_1 = 4.73$	$\lambda_2 = 21.9$

滚珠丝杠
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（容许转速图解）
(Permissible rotational speed diagram)

DN值
DN Value

DN值是滚珠圆直径与每分钟转速的乘积（rpm）(min^{-1})
The DN Value is the ball circle diameter multiplied by the rpm (revolutions per minute) (min^{-1})

$$DN = D \times N$$

$$N(min^{-1}) = \frac{DN}{D}$$

N ： 由DN值确定的容许转速 (mm^{-1})
Permissible rotational speed determined by the DN value (mm^{-1})

DN ： DN系数
DN coefficient
–： 精密转造滚珠丝杠：90, 000
- : Precision Rolled ball screw : 90,000
–： 长导程转造滚珠丝杠：100, 000
- : Large Lead Rolled Ball Screw : 100,000
–： 研磨滚珠丝杠：70, 000
- : Ground Ball Screw : 70,000

D ： 滚珠中心–中心直径（mm）
Ball center-to-center diameter (mm)

选择临界转速和DN值之间的较小值来计算最大转速。
Select the lesser value between critical speed and DN value for the maximum rotational speed.
设定“最大工作转速”＜“容许转速”
Set “The maximum working Rotational speed < The Permissible Rotational speed ”
请参见下列注意事项。
Please consider the following precautions.

(1) 超过临界转速
Exceeding the Critical Speed

- 超出临界转速会导致螺杆摇动，并产生异常噪音。
  Exceeding the critical speed will cause the screw to shake and will generate excessive noise.
- 当螺母处于螺杆轴两端时噪音会增大。
  The noise will increase when the nut is at either end of the screw shaft.
- 当螺母位于螺杆轴中间时噪音会减小。
  The noise will decrease when the nut is in the middle of the screw shaft.

(2) 超过DN值
Exceeding the DN Value

- 转速超过DN值会导致异常噪音和螺母内部振动。
  Exceeding the DN Value speed will cause noise and vibration in the nut.
- 转速超过DN值会损坏螺母的循环部件（导向板、回流管、端盖、回流板）。
  Exceeding the DN Value speed can damage the recirculation parts of the nut (Deflector, Return tube, End-cap, Return plate).

滚珠丝杠
Ball Screw
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基本额定载荷与使用寿命
Basic load rating & lifetime

[额定载荷与使用寿命]
[Load rating & life]

在正常条件下，重复应力造成的金属疲劳可能损坏滚珠丝杠。重复应力可导致滚动面和钢珠剥落。滚珠丝杠的使用寿命是指出现剥落前滚珠丝杠的总旋转次数。

Under normal conditions, the ball screw can be damaged by metal fatigue as the result of repeated stress. The repeated stress causes flaking of the raceways and steel balls. The life of ball screw is defined as the total number of rotations that the ball screw rotates until flaking occurs.

(1) 标称寿命（总旋转次数）：L
Nominal life (total number of rotations): L

标称寿命的定义是，在相同条件下运行的一组完全相同的滚珠丝杆，在剥落90%以前的总旋转次数（L=总旋转次数）。

We define the nominal life as the total number of rotations (L=total number of rotations) without flaking by 90% of a group of an identical group of ball screws operating under the same condition.

$$L = \left(\frac{C_a}{F_a}\right)^3 \times 10^6$$

- L ： 标称寿命（旋转总次数） Nominal life (total number of rotations)
- Fa ： 施加轴向载荷 Applied axial load
- Ca ： 基本额定动载荷 Basic dynamic load rating

(2) 基本额定动载荷：Ca（kN）
Basic dynamic load rating : Ca [kN]

基本额定动载荷（Ca）的定义是，在相同条件下独立运行一组滚珠丝杠（L=106）时，方向和容积恒定的载荷。

Basic dynamic load rating Ca is defined as load which is constant direction and volume, when operating one group of ball screw independently as L=106 under same condition.

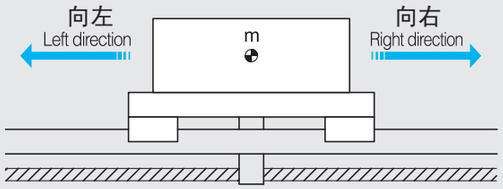
(3) 基本额定静载荷：Coa（kN）
Basic static load rating : Coa [kN]

对静态或动态下的滚珠丝杠系统施加过度载荷或冲击时，会导致钢珠和滚动面出现永久性的局部变形。

If an excessive load or shock is applied to the ball screw system in the static or dynamic state, permanent but local deformation can occur to the steel balls and raceway.

计算轴向载荷
Calculating the axial load

[水平安装]
[Horizontal installation]



- m ： 质量（kg） Mass (kg)
- g ： 重力加速度 (m/s²) Acceleration of gravity (m/s²)
- a ： 加速度与减速度 (m/s²) Acceleration and deceleration (m/s²)
- μ ： 导面的摩擦系数 Frictional coefficient of the guide surface
- f ： 导面阻力（N） Guide surface resistance (N)

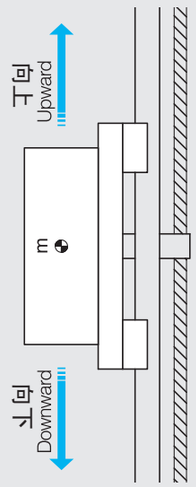
向左的轴向载荷
Axial load for left direction

加速度
Fa1(Acceleration : N) = μ · mg + f + ma
等速运动
Fa2(Uniform motion : N) = μ · mg + f
减速度
Fa3(Deceleration : N) = μ · mg + f - ma

向左的轴向载荷
Axial load for right direction

加速度
Fa4(Acceleration : N) = μ · mg - f - ma
等速运动
Fa5(Uniform motion : N) = μ · mg - f
减速度
Fa6(Deceleration : N) = μ · mg - f + ma

[垂直安装]
[Vertical installation]



向上的轴向载荷
Axial load for upward

加速度
Fa1(Acceleration : N) = mg + f + ma
等速运动
Fa2(Uniform motion : N) = mg + f
减速度
Fa3(Deceleration : N) = mg + f - ma

向下的轴向载荷
Axial load for downward

加速度
Fa4(Acceleration : N) = mg - f - ma
等速运动
Fa5(Uniform motion : N) = mg - f
减速度
Fa6(Deceleration : N) = mg - f + ma

- m ： 质量（kg） Mass (kg)
- g ： 重力加速度 Acceleration of gravity (m/s²)
- a ： 加速度与减速度 Acceleration and deceleration (m/s²)
- f ： 导面阻力（N） Guide surface resistance (N)

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静态安全系数
Static safety factor

选择滚珠丝杠的方法有两种。一种是根据静态载荷值选择，另一种是按照所需的使用寿命选择。通常多采用后者。

There are two ways to select a ball screw. One depends on the value of static load and the other is based on the required life. Usually, the later is preferred.

$$F_{a\ max.} = \frac{C_{oa}}{f_s}$$

- $F_{a\ max.}$ ：最大容许轴向载荷（kN） Max permissible axial load (kN)
- C_{oa} ：基本动态额定载荷（kN） Basic static load rating (kN)
- f_s ：安全系数 Safety factor

应用设备 Applied machine	载荷条件 Load conditions	安全系数下限 Lower limit of f_s
一般工业机械 General industrial machinery	无振动或冲击 Without vibration or impact	1.0 ~ 1.3
	有振动或冲击 With vibration or impact	2.0 ~ 3.0
机床 Machine tool	无振动或冲击 Without vibration or impact	1.0 ~ 1.5
	有振动或冲击 With vibration or impact	2.5 ~ 7.0

[计算使用寿命]

检查使用寿命
Checking life time

[计算标称寿命]
[Calculating the nominal life]

$$L = \left(\frac{C_a}{f_w \cdot F_a}\right)^3 \times 10^6$$

- L ：标称寿命（总旋转次数）（rev） Nominal life (Total number of rotations) (rev)
- Fa ：施加轴向载荷（N） Applied axial load (N)
- Ca ：基本动态额定载荷（N） Basic dynamic load rating (N)
- fw ：载荷系数 Load factors

振动/冲击 Vibrations / Impact	转速（V） Speed (V)	载荷系数（fW） Load factor fw
微弱 Faint	极慢 Very low V ≦ 0.25 m/s	1 ~ 1.2
弱 Weak	慢 Slow 0.25 ＜ V ≦ 1.0 m/s	1.2 ~ 1.5
适中 Medium	适中 Medium 1.0 ＜ V ≦ 2.0 m/s	1.5 ~ 2.0
强 Strong	快 High V ＞ 2.0 m/s	2.0 ~ 3.5

[计算使用寿命]
[Calculating life time]

使用寿命（总旋转次数）的计算方法如下。

Life time (Total number of rotations) calculation is as below.

$$Lh = \frac{L}{60 \cdot N} = \frac{L \cdot Ph}{2 \cdot 60 \cdot n \cdot S}$$

- L_h ：使用寿命 Life time (h)
- L ：标称寿命（总旋转次数）Nominal life (Total number of rotations) (rev)
- N ：每分钟旋转次数 Rotations per minute (min^{-1})
- n ：每分钟往复次数 Number of reciprocations per minute (min^{-1})
- P_h ：滚珠丝杠导程 Ball screw lead (mm)
- S ：行程 Stroke (mm)

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Ball Screw
技术数据
Technical Data

[计算行程距离]
[Calculating travel distance]

行程距离的计算方法如下。
Calculating the travel distance is as below.

$$L_s = \frac{L \cdot Ph}{10^6}$$

Ls : 行程距离（km） Travel distance (km)
L : 标称寿命（总旋转次数）（rev） Nominal life (Total number of rotations) (rev)
Ph : 滚珠丝杠导程（mm） Ball screw lead (mm)

[计算平均轴向载荷]
[Calculating mean axial load]

平均轴向载荷是在载荷变化条件下，与标称寿命相等的恒定载荷。如果载荷逐级变化，平均轴向载荷就按以下方法计算。
The mean axial load is a constant load that is equivalent to nominal life in varying the load conditions.
If the load changes in stages, the mean axial load is as below.

$$F_m = \sqrt{\frac{(F_{a1}^6 L_1 + F_{a2}^3 L_2 + ... + F_{an}^3 L_n)}{L}}$$

- F_m : 平均轴向载荷 (N) Mean axial load (N)
- F_{an} : 变化载荷 (N) Varying load (N)
- L : 总行程距离 Total travel distance
- L_n : 逐级载荷下的行程距离差 Distance travel under load in stages

检查旋转扭矩
Checking the rotational torque

旋转扭矩可通过下列等式计算。
The rotational torque can be calculated by below equation.

[匀速运动时]
[During uniform]

Tt = T1 + T2 +T4

- Tt : 匀速运动的旋转扭矩 Rotational torque for uniform motion (N·mm)
- T1 : 外部载荷产生的摩擦扭矩 Frictional torque by external load (N·mm)
- T2 : 滚珠丝杠产生的预载扭矩 Preload torque by ball screw (N·mm)
- T4 : 其他扭矩 Other torque (N·mm)
  （支撑单元或油封产生的摩擦扭矩）(Frictional torque by support unit or oil seal)

[加速运动时]
[During acceleration]

Tk = Tt + T3

- Tk : 加速旋转扭矩 Rotational torque for acceleration (N·mm)
- Tt : 匀速旋转扭矩 Torque for uniform (N·mm)
- T3 : 加速扭矩 Torque for acceleration (N·mm)

[减速运动时]
[During deceleration]

Tg = Tt - T3

- Tg : 减速旋转扭矩 Rotational torque for deceleration (N·mm)
- Tt : 匀速旋转扭矩 Torque for uniform (N·mm)
- T3 : 减速扭矩 Torque for deceleration (N·mm)

❶ 外部载荷产生的摩擦扭矩
Frictional torque by external load

对滚珠丝杠施加旋转力时，可按以下公式计算外部载荷产生的摩擦扭矩：
In case turning force for ball screw, Frictional torque by external load can be calculated as below.

$$T1 = \frac{Fa \cdot Ph}{2\pi \cdot \eta} \times A$$

T1 : 外部载荷产生的摩擦扭矩 (N·mm) Frictional torque by external load (N·mm)
Fa : 轴向载荷（N） Axial load (N)
Ph : 滚珠丝杠导程（mm） Ball screw lead (mm)
η : 滚珠丝杠效率（标称：0.9~0.95） Ball screw efficiency (Normal: 0.9~0.95)
A : 减速比 Reduction ratio

滚珠丝杠
Ball Screw
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❷ 滚珠丝杠预载产生的摩擦扭矩 Frictional torque by ball screw preload

$$T2 = Td \times A$$

- T2 ：滚珠丝杠的预载扭矩(N·mm)Preload torque of ball screw (N·mm)
- Td ：滚珠丝杠的预载扭矩 Preload torque of ball screw
  （※参见预载页面）(※ See the preload page)
- A ：减速比 Reduction ratio

❸ 加速扭矩 Torque for acceleration

$$T3 = J \times \omega \times 10^3$$

- T3 ：加速扭矩 (N·mm) Torque for acceleration (N·mm)
- J ：惯性力矩 (kg.m²) Inertia moment (kg.m²)
- ω ：角向加速度 (rad/s²) Angular acceleration (rad/s²)

*惯性力矩（J）公式
* Equation of inertia moment (J)

$$J = m\left(\frac{Ph}{2\pi}\right)^2 \times A^2 \times 10^{-6} + J_S \cdot A^2 + J_A \cdot A^2 + J_B$$

- m ：质量 Mass (kg)
- Ph ：滚珠丝杠导程 Ball screw lead (mm)
- A ：减速比 Reduction ratio
- J_S ：螺杆轴惯性力矩 Inertia moment of the screw shaft (kg·m²)
- J_A ：连接到螺杆轴上的齿轮等的惯性力矩Inertia moment of gear etc. which attached to screw shaft (kg·m²)
- J_B ：连接到电机上的齿轮等的惯性力矩 Inertia moment of gear etc. which attached to motor (kg·m²)

*角向减速度（ω）公式
* Equation of angular acceleration (ω)

$$\omega = \frac{2\pi \cdot N}{60t}$$

- N ：电机每分钟转数 (mm⁻¹) Motor rotations per minute (mm⁻¹)
- t ：加速时间（sec） Acceleration time (sec)

*圆形物体的惯性力矩
* Inertial moment of a round object

$$J = \frac{m \cdot D^2}{8 \times 10^6}$$

- J ：惯性力矩 (kg·m²) Inertial moment (kg·m²)
- m ：圆形物体质量（kg） Mass of a round object (kg)
- D ：螺纹处轴外径（mm） Screw shaft outer diameter (mm)

选择电机
Selecting motor

[使用伺服电机时] [In case of using servomotor]

❶ 计算电机的转速 Calculating rotational speed for motor
所需电机转速的计算公式如下：
The required rotational speed for motor is as below.

$$N = \frac{V \times 1000 \times 60}{Ph} \times \frac{1}{A}$$

- N ：所需电机转速 Required rotational speed of the motor (min⁻¹)
- V ：进给速度 Feeding speed (m/s)
- Ph ：滚珠丝杠导程 Ball screw lead (mm)
- A ：减速比 Reduction ratio

*所需电机转速的数值必须小于或等于电机的额定转速
* The value for required rotational speed of the motor must be equal or below to the rated rotational speed of the motor

❷ 计算电机分辨率 Calculating resolution for motor
按以下公式计算编码器和驱动器的分辨率
Calculating resolution for encoder and driver are as below.

$$R = \frac{Ph \cdot A}{S_{min}}$$

- R ：所需分辨率 Required resolution (p/rev)
- Ph ：滚珠丝杠导程 Ball screw lead (mm)
- A ：减速比 Reduction ratio
- S_{min} ：最小进给量 Minimum feed amount (mm)

❸ 计算电机扭矩 Calculating motor torque

电机所需的扭矩有很多，具体取决于是加速运动、匀速运动还是减速运动。参见旋转扭矩页面。
The required torque for motor is various in accordance with acceleration, uniform and deceleration motion. See the page of rotational torque.

* 最大扭矩 Maximum torque
所需的电机最大扭矩必须小于或等于电机的峰值扭矩。
The required maximum torque for motor must be equal or lower to the pear torque of motor.

* 有效扭矩 Effective torque
按以下公式计算有效扭矩。有效扭矩的计算值必须小于或等于电机的额定扭矩。
Calculating effective torque is as below. The calculated value of effective torque must be equal or lower to rated torque of motor.

$$T_{rms} = \sqrt{\frac{(T1^2 \cdot t1 + T2^2 \cdot t2 + T3^2 \cdot t3)}{t}}$$

- T_{rms} ：有效扭矩 Effective torque (N·mm)
- T_n ：波动扭矩 Fluctuating torque (N·mm)
- t_n ：扭矩施加时间 Time for applying torque “Tn”(s)
- t ：循环时间 Cycle time (t1+t2+t3) (s)

* 有效扭矩值必须小于或等于电机的额定扭矩
* The value of effective torque must be equal or below to the rated torque of the motor

❹ 惯性力矩 Inertia Moment
按以下公式计算所需的电机惯性力矩
The inertial moment required for the motor is as below

$$J_m = \frac{J}{C}$$

- J_m ：所需的电机惯性力矩 Inertial moment required for the motor (kg·m²)
- C ：由电机与驱动器决定的因数 Factor determined by the motor and the driver

*电机的惯性力矩必须大于所需的电机惯性力矩
* The inertial moment of the motor must be above to the inertial moment required for the motor.

滚珠丝杠
Ball Screw
技术数据
Technical Data

[使用步进电机时]
[In case of using a stepping motor]

❶ 计算最小步距角
Calculating minimum step angle

按下列公式计算电机和驱动器的步距角
Calculating step angle for motor and driver is as below.

$$\theta = \frac{360 \cdot S_{min}}{Ph \cdot A}$$

- θ : 所需的电机步距角 Required step angle for motor (°)
- S_{min} : 最小进给量/步 Minimum feed amount/ per step (mm)
- Ph : 滚珠丝杠导程 Ball screw lead (mm)
- A : 减速比 Reduction ratio

❷ 计算脉冲速度
Calculating pulse speed

脉冲速度的计算公式如下：
Calculating pulse speed is as below.

$$f = \frac{V \times 1000}{S_{min}}$$

- f : 脉冲速度 Pulse speed (Hz)
- V : 给速度 Feeding speed (m/s)
- S_{min} : 最小进给量 Minimum feed amount (mm)

❸ 计算电机扭矩
Calculating motor torque

电机所需的扭矩有很多，具体取决于是加速运动、匀速运动还是减速运动。
参见旋转扭矩页面。
The required torque for motor is various in accordance with acceleration, uniform and deceleration motion. See the page of rotational torque.

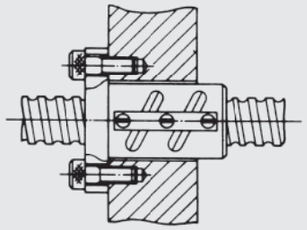
[电机选择须知]
[Cautions for selecting motor]

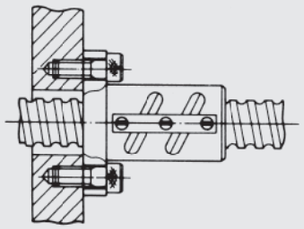
在为选择的电机计算所需扭矩和脉冲速度时，应使应用的电机功率加倍以确保安全。
When calculating required torque and pulse speed for selecting motor, the applied capacity of motor should be doubled for safety.

安装滚珠丝杠的注意事项
Precautions when mounting ball screw

[螺母架设计]
[Nut bracket design]

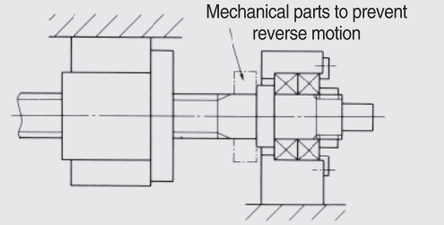
如导向板与回流管型在螺母上有突出部分，所以应根据螺母类型设计螺母架。
In case of deflector, return tube types have projected part on nut itself, therefore the nut bracket should be designed in accordance with nut type.





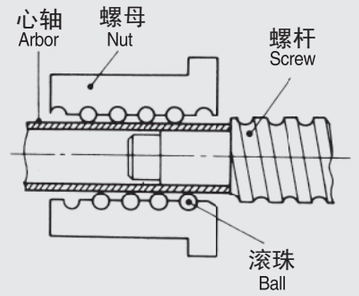
[端部加工与设计螺母环境]
[End machining and designing nut environment]

在设备内安装滚珠丝杠时，切勿混淆螺母与螺杆类型。还应安装组件防止螺母超限。
When install the ball screw into machine, please avoid disassembling nut and screw type. Also, please install the components which prevent over-stroke of nut.



[从螺杆中拆卸螺母时]
[When disassembling the nut from screw]

在维护期间，请使用临时螺杆固定螺母。
Please use temporary screw to put the nut during maintenance.



※ 从螺杆上拆卸螺母时的注意事项
Cautions for disassembling the nut from screw

从螺杆上拆卸螺母时如果操作不当，很可能会造成螺母移位、预载变化、钢珠脱落和滚珠循环部件故障。因此，当您从螺杆上拆卸螺母时，请联系SBC公司。
If there is mishandling while disassembling the nut from screw, it can cause the problem of nut position, preload, steel ball off and ball circulation part. Therefore, please contact SBC when you disassemble the nut from screw.

滚珠丝杠
Ball Screw
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安全设计
Safety Design

[润滑]
[Lubrication]

滚珠丝杠的适当润滑对其性能至关重要。
Lubrication for ball screw is a key part of its performance.

(1) 润滑间隔 Lubricants interval

润滑间隔取决于设备的运行条件。因此，建议采用以下润滑间隔。同时，尽量不要混用润滑油与润滑脂。
The lubrication interval varies according to working conditions of the machine. Therefore, the following lubrication intervals are recommended. Also, mixed oil or grease feeding is not recommended.

项目 Item	检查时间 Checking time	润滑间隔 Lubricant interval	运行条件与结果 Working condition and outcome	润滑量 Volume of feeding
润滑脂 Grease	3 ~ 6 个月 3 ~ 6 months	6个月 ~ 1年 6 months~1 year	正常条件 Normal condition	螺母空间的1/3 One third in nut space
润滑油 Oil	1周 1 week	根据检查结果 According to checking	根据污染程度和润滑量 According to contamination and volume	根据螺杆直径建议的润滑量（参见下表） Recommended volume according to screw diameter (see below)
	每天 Everyday	随时 Any time	根据上次润滑油的用量 According to volume of oil before use	

※ 根据螺杆直径建议的润滑量
Recommended volume according to screw diameter

螺杆直径（mm） Screw diameter (mm)	润滑量（cc） Volume (cc)
4 ~ 15	0.05 / 3 min.
16 ~ 25	0.1 / 3 min.
32 ~ 40	0.2 / 3 min.
50 ~ 63	0.4 / 3 min.
80 ~ 100	0.5 / 3 min.

(2) 润滑油类别 Class of oil

润滑剂 Lubricant	类别 Class
润滑油 Oil	透平油 Turbine oil ISOVG32 ~ 68

(3) 润滑油的分类和选择 Classification and selection of lubrication

必须根据振动、无尘室、真空和运行条件，选择适用于直线导轨系统的润滑油。
Lubricants for linear rail system must be selected after considering vibration, clean room, vacuum and working condition.

SBC为用户提供两种润滑脂。
SBC supplies the two kinds of grease.

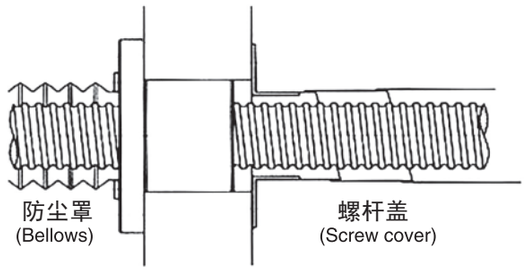
项目 Item	应用 Application	品牌[公司] Brand [Company]
正常运行条件 Normal working condition	多用途工业应用 Multipurpose industrial application	Shell Alvania EP(LF)0 [韩国壳牌I] Shell Alvania EP(LF)0 [Korea shell]
特殊运行条件 Special working condition	无尘室 Clean room	SNG 5050 [韩国NTG] [NTG Korea]
	振动 Vibration	
	宽温度 Wide temperature	

* 如需材料安全数据表或特殊用途的润滑脂，请联系SBC公司。
Contact SBC if MSDS is required or a special purpose of grease is required.

• 在使用特殊润滑脂以前，请先咨询SBC公司。
When planning to use a special lubricant, contact SBC before using it.

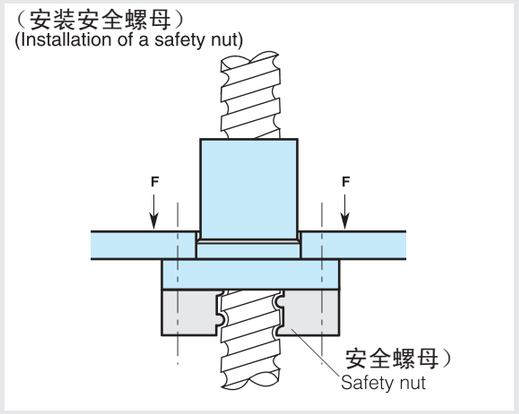
防尘安全设计
Safety design for dust proof

滚珠丝杠内有循环运动的钢珠。碎屑或其他异物（如断边）可能损坏螺母。螺母一般都配有密封，如果没有，请选用其他装置（如防尘罩）防止碎屑损坏螺母。
Ball screws have recirculating steel balls inside. Debris and other foreign objects such as cutting chips can damage the nut. Typically a seal is a standard part of the nut but if it is not available, please consider another method of protecting the nut for debris such as bellows.



[安全螺母]
[Safety nut]

如果滚珠丝杠是垂直安装的，就应采用安全螺母。当作用力过度导致滚珠螺母损坏时，安全螺母能阻止载荷。
If the ball screw is vertically installed, a safety nut should be applied. This nut blocks the load in case the ball nut has been destroyed by excessive force.



防锈
Anti-rust

用户可采用三种表面处理以防止生锈。
3 types of surface treatment are available to prevent rust.

[镀铬]
[Chrome plating]

镀铬的涂层厚度超过750HV能有效防止生锈和磨损。
Chrome plating achieves high rust resistance and wear resistance with the coating film of over 750HV.

[低温镀黑铬]
[Raydent]

要进行耐腐蚀处理时，可采用低温镀黑铬表面处理，它非常适合耐腐蚀处理。
For corrosion resistance, raydent surface treatment is available. This treatment is suitable for corrosion resistance.

[氟碳化合物低温镀黑铬]
[Fluorocarbon raydent treatment]

如需强耐腐蚀性（水环境或盐水环境）表面处理，可在低温镀黑铬表面加氟碳化合物涂层。
Fluorocarbon coating on raydent-treatment is suitable where high corrosion resistance is required (water or salty water working condition).

※ 表面处理注意事项
Caution for surface treatment

❶ 如果选择了经过表面处理的滚珠丝杠，在计算载荷寿命时应使用更高的安全系数。
Use a higher safety factor for load life calculations when a surface treated ball screw system is selected.

❷ 上述表面处理方法以外的其他镀层方法通常会产生性能问题。
Except for the above surface treatments, other plating types usually cause performance problems.

❸ 如需表面处理，请联系SBC公司。
Contact SBC for surface treatments.

滚珠丝杠
Ball Screw

SBC精密转造滚珠丝杠
SBC Precision Rolled Ball Screw

类型
Type

SBC精密转造滚珠丝杠的螺杆直径在ø6mm-Ømm之间，导程在1mm-40mm之间，螺杆的精度等级达P5或T7 或二者兼具，长度最长可达7000mm。

SBC Precision Rolled Ball Screws are available in a variety of shaft diameters from Ø6mm to Ømm and a variety of Leads from 1mm to 40mm. Screws are available in P5 or T7 or both precision grades and lengths up to 7000mm depending on the particular screw.



STK 精密转造滚珠丝杠
STK Precision Rolled Ball Screw



SLK 长导程转造滚珠丝杠
SLK Long Lead Rolled Ball Screw



MBS微型转造滚珠丝杠
MBS Miniature Rolled Ball Screw

滚珠丝杠的轴型号
Ball Screw shaft Model No.

(单位Unit : mm)

型号 Model No.	直径 Diameter	导程 Lead	最大长度 Max. Length	精度 Accuracy
RM0601T	06	01	900	T7
RM0801T	08	01	1200	T7
RM0802T	08	02	1200	T7
RM0802.5T	08	02.5	1200	T7
RM1002T	10	02	1200	T7
RM1004T	10	04	1200	T7
RM1204T	12	04	1400	T7
RM1205T	12	05	1400	T7
RM1210T	12	10	3000	T7
RM1520T	15	20	3000	T7
RM1605	15.6	05	3000	P5, T7
RM1610T	16	10	3600	T7
RM1616T	16	16	3600	T7
RM2005	19.6	05	4000	P5, T7
RM2010T	20	10	3000	T7
RM2020	19.6	20	4000	P5, T7
RM2505	24.6	05	5000	P5, T7
RM2510	24.6	10	5000	P5, T7
RM2525	24.6	25	5000	P5, T7
RM3205	31.6	05	6000	P5, T7
RM3210	31.6	10	6000	P5, T7
RM3220T	32	20	6000	T7
RM3232T	32	32	6000	T7
RM4005	39.6	05	6000	P5, T7
RM4010	39.6	10	6000	P5, T7
RM4020	39.6	20	6000	P5, T7
RM4040	39.6	40	6000	P5, T7
RM5010	49.5	10	6000	P5, T7
RM5020	49.5	20	6000	P5, T7
RM5050T	50	50	6000	T7
RM6310	62.5	10	6000	P5, T7
RM8010	79.5	10	7000	T7

※ SBC严格遵循DIN和JIS标准
SBC follows DIN and JIS Standards.

DIN标准 DIN Standard	JIS标准 JIS Standard
P5	C5
T7	C7

滚珠丝杠
Ball Screw

SBC精密转造滚珠丝杠
SBC Precision Rolled Ball Screw

订购实例
Ordering Example

[单独螺母的零件号]
[Nut Only Part Numbers]

32 20 SLK – S
[1] [2] [3] [4]

[1] 直径
Diameter
[2] 导程
Lead
[3] 螺母类型：STK、SLK
Nut Type : STK, SLK
[4] 预载：S（间隙型）
Preload : S (Clearance Type)

※ 必须订购MBS型作为螺杆和螺母组合。
MBS type must be ordered as a screw and nut assembly.
※ 如果只订购螺母，预载只能是S型（间隙型）
When ordering only a nut, the preload is only S type (Clearance type).

[单独螺杆轴的零件号]
[Screw Shaft Only Part Numbers]

RM 3220T – 1500L – T7
[1] [2] [3]

[1] 型号
Model No.
[2] 螺杆轴长度
Screw shaft length
[3] 精度
Accuracy

※请参见规范中的型号说明。
Refer to the specifications for the Model No.
※单独螺杆轴只有T7的精度等级。
Individual screw shafts are only available in the T7 precision grade.
※必须订购MBS型作为螺杆和螺母组合。
MBS type must be ordered as a screw and nut assembly.

[螺母与螺杆组合的零件号]
[Nut and Screw Assembly Part Numbers]

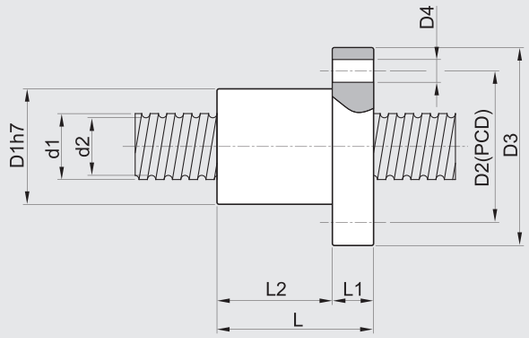
3220 SLK – A – 1 – 1300 / 1500 – T7 – R
[1] [2] [3] [4] [5] [6] [7]

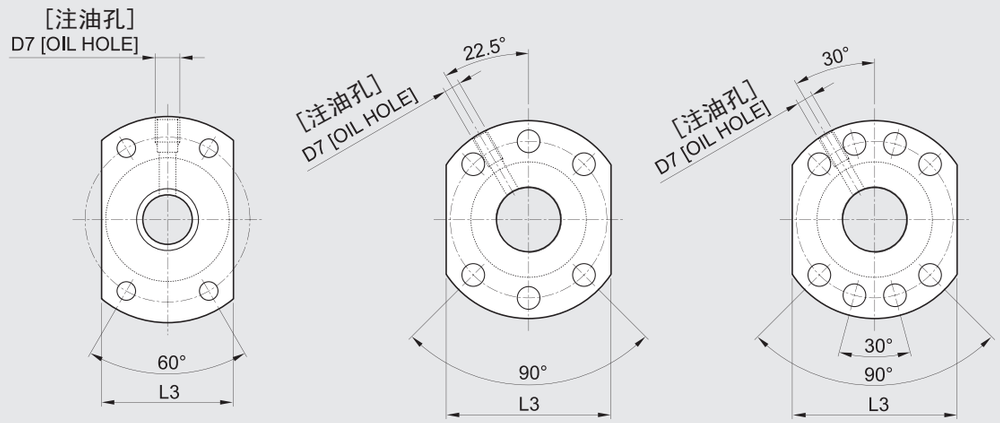
[1] 型号：STK、SLK、MBS
Model No. : STK, SLK, MBS
[2] 预载：S（间隙型）、A（无间隙型）
Preload : S (Clearance Type), A (Non-backlash Type)
[3] 螺母数量：螺杆轴上的螺母数量
Nut Quantity : Nut Quantity on Screw shaft
[4] 螺纹长度：无符号（未处理）
Thread Length : No Symbol (No processing)
[5] 总长度
Total Length
[6] 精度：P5、T7
Accuracy : P5, T7
[7] 表面处理：无符号（标准）、R（表面处理）
Surface treatment : No Symbol (Standard), R (Surface treatment)

※如需更高的精度或刚度，建议使用螺杆–螺母组合。
A screw-nut assembly is recommended if high accuracy or rigidity is required.
※如需表面处理，请标记表面处理类型。
For surface treatment, mark the type of surface treatment.
※如需进行端部加工，请附加图纸。
If end machining is required, please attach a drawing.
※请参见规范了解有关精度的说明。
Refer to the specifications for the Accuracy.
※只能订购MBS型作为螺杆–螺母组合。
MBS type can only be ordered as a screw-nut assembly.

滚珠丝杠
Ball Screw
SBC精密转造滚珠丝杠
SBC Precision Rolled Ball Screw

STK/STC型精密转造滚珠丝杠（STK/STC）
STK/STC Precision Rolled Ball Screw STK/STC Type





（单位Unit : mm)

型号 Model No.	d1 （标称直径） (Nominal diameter)	Ph （导程） (Lead)	do （滚珠圆直径） (Ball circle diameter)	Da （滚珠直径） (Ball Diameter)	d2 （根圆直径） (Root - diameter)	i （回路数） (No. of circuits)	D1	D2 (PCD)	D3
STK1605	15.6	5	16	3.5	12.7	3x1	34	44	54
STK2005	19.6	5	20	3.5	16.7	4x1	40	50	60
STK2505	24.6	5	25	3.5	21.7	4x1	43	55	67
STK2510	24.6	10	25	3.5	21.7	4x1	60	78	96
STC2510	24.6	10	25	3.5	21.7	4x1	40	51	62
STK3205	31.6	5	32	3.5	27.1	4x1	56	71	86
STK3210	31.6	10	32	5.556	27.1	4x1	67	85	103
STK4005	39.6	5	40	3.5	36.7	4x1	64	82	100
STK4010	39.6	10	40	7.144	36.7	4x1	76	96	116
STK5010	49.5	10	50	7.144	43	4x1	75	93	110
STK6310	62.5	10	63	7.144	56.9	6x1	90	108	125
STK8010	79.5	10	80	7.144	73.9	6x1	105	125	145

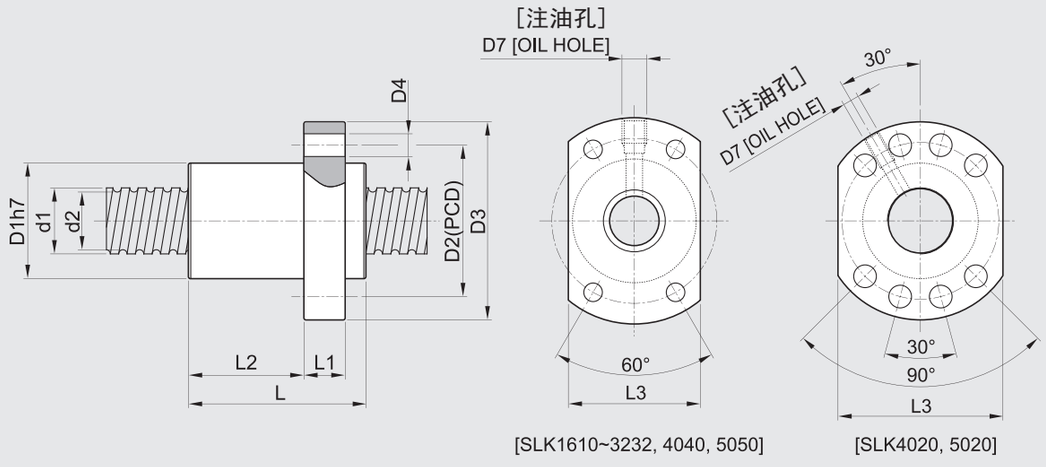
D4	D7	L	L1	L2	L3	Ca [kN]	Coa [kN]	最大长度 Max. Length
4.5	M6x1	45	10	35	40	7.5	12.1	3000
4.5	M6x1	53	10	43	46	11.0	23.3	4000
5.5	M6x1	53	10	43	50	12.5	30.4	5000
9	M6x1	85	15	70	72	19.0	38.0	5000
6.6	M6x1	85	12	73	48	19.0	38.0	5000
6.6	M6x1	53	12	41	68	14.2	40.0	6000
9	M6x1	90	15	75	78	33.2	70.0	6000
9	M6x1	56	15	41	75	15.7	52.2	6000
11	M6x1	93	17	76	88	38.3	93.3	6000
11	M8x1	98	16	75	85	43.6	122.5	6000
11	M8x1	126	18	96	95	70.8	218.4	6000
13.5	M8x1	128	20	96	110	80.0	288.3	7000

❶ Ca（基本额定动载荷）、Coa（基本额定静载荷）
Ca (Basic Dynamic load rating), Coa (Basic static load rating)

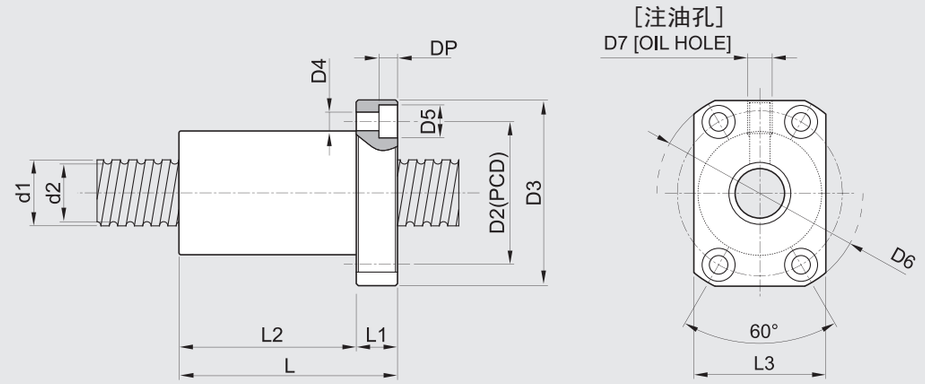
滚珠丝杠
Ball Screw

SBC精密转造滚珠丝杠
SBC Precision Rolled Ball Screw

SLK长导程转造滚珠丝杠
SLK Long Lead Rolled Ball Screw



[SLK1610~3232, 4040, 5050] [SLK4020, 5020]



[SLK1520, 2010]

(单位Unit : mm)

型号 Model No.	d1 (标称直径) (Nominal diameter)	Ph (导程) (Lead)	do (滚珠圆直径) (Ball circle diameter)	Da (滚珠直径) (Ball Diameter)	d2 (根圆直径) (Root - diameter)	i (回路数) (No. of circuits)	D1	D2 (PCD)	D3	D4
SLK 1520	15	20	15.5	3.175	12.4	1.5x1	34	45	50	6
SLK 1610	15.9	10	16.6	3.175	13.4	3x1	34	45	57	5.5
SLKN 1616	15.9	16	16.6	3.175	13.4	1.8x2	32	42	53	4.5
SLK 2010	20	10	21	3.969	17	2.5x1	46	59	66	5.5
SLK 2020	19.6	20	20	3.5	16.7	1.8x2	39	50	62	5.5
SLK 2525	24.6	25	25	3.5	21.7	1.8x2	47	60	74	6.6
SLK 3220	32	20	32.7	3.969	28.7	3x1	50	65	80	9
SLKN 3232	32	32	33	4.762	28.2	1.8x2	58	74	92	9
SLK 4020	39.6	20	40	5.556	35.2	3x1	63	78	93	9
SLK 4040	39.6	40	40	7.144	34	1.8x2	73	93	114	11
SLK 5020	49.5	20	50	6.35	44.6	5x1	75	93	110	11
SLK 5050	50	50	52.2	7.938	44.3	1.8x2	90	112	135	14

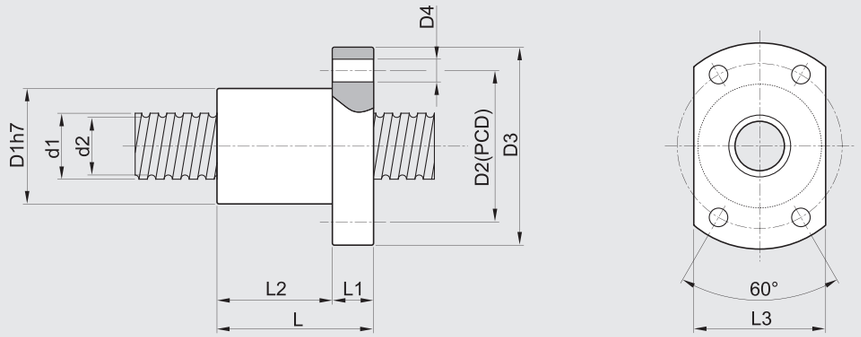
D5	DP	D6	D7	L	L1	L2	L3	Ca [kN]	Coa [kN]	最大长度 Max. Length
-	-	55	M4x0.7	57	7	50	34	4.56	7.23	3000
-	-	-	M6x1	43.3	10	24	40	7	12	3600
-	-	-	M6x1	48	10	27.5	38	7.1	14	3600
11	5.5	74	M6x1	54	13	41	46	6.8	10.8	3000
-	-	-	M6x1	52	10	31.2	46	11.5	17.5	4000
-	-	-	M6x1	64	12	40.8	56	13	22.6	5000
-	-	-	M6x1	77	13	45	62	20.9	57.7	6000
-	-	-	M6x1	82	15	53	68	17.2	53.9	6000
-	-	-	M8x1	82	15	47.5	70	37.9	62.8	6000
-	-	-	M8x1	99	17	63	84	40.4	99.6	6000
-	-	-	M8x1	120	18	80	85	75.7	149.7	6000
-	-	-	M6x1	123	20	81.5	92	50	135.3	6000

❶ Ca（基本额定动载荷）、Coa（基本额定静载荷）
Ca (Basic Dynamic load rating), Coa (Basic static load rating)

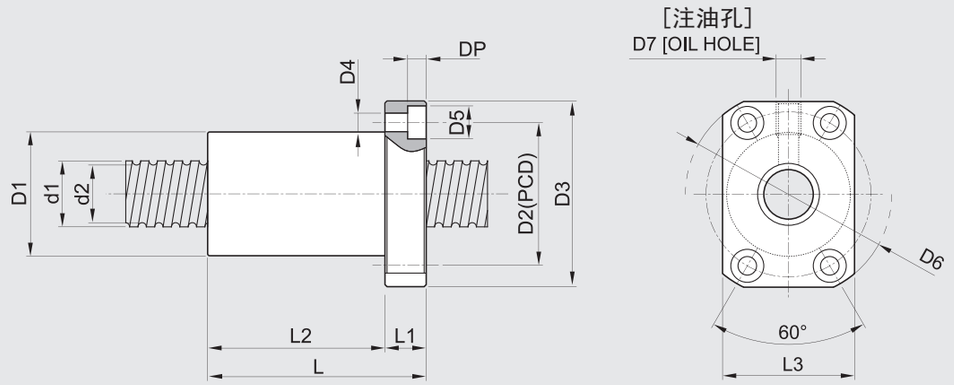
滚珠丝杠
Ball Screw

SBC精密转造滚珠丝杠
SBC Precision Rolled Ball Screw

MBS微型转造滚珠丝杠
MBS Miniature Rolled Ball Screw



[MBS0601~1205]



[MBS1210]

(单位Unit : mm)

型号 Model No.	d1 (标称直径) (Nominal diameter)	Ph (导程) (Lead)	do (滚珠圆直径) (Ball circle diameter)	Da (滚珠直径) (Ball Diameter)	d2 (根圆直径) (Root - diameter)	i (回路数) (No. of circuits)	D1	D2 (PCD)	D3	D4
MBS 0601	6	1	6.3	0.8	5.5	3x1	13	21.5	27	3.4
MBS 0801	8	1	8.2	0.8	7.4	4x1	16	24	30	3.4
MBS 0802	8	2	8.4	1.2	7.2	3x1	16	24	30	3.4
MBS 0802.5	8	2.5	8.4	1.2	7.2	2.5x1	20	30	38	4.5
MBS 1002	10	2	10.4	2	8.4	3x1	18	27	35	4.5
MBS 1004	10	4	10.6	2	8.6	3x1	26	36	46	4.5
MBS 1204	12	4	12.4	2.381	10	3.5x1	28	39	48	5.5
MBS 1205	12	5	12.4	2	10.4	3.5x1	28	39	48	5.5
MBS 1210	12	10	12	2	10	2x1	30	40	45	4.5

D5	DP	D6	D7	L	L1	L2	L3	Ca [kN]	Coa [kN]	最大长度 Max. Length
-	-	-	-	15	3.5	11.5	17	0.71	1.18	1200
-	-	-	-	16	4	12	18	0.95	1.91	1200
-	-	-	-	16	4	12	18	1.13	1.87	1200
-	-	-	-	21	5	16	23	1.48	2.27	1200
-	-	-	-	28	5	23	22	1.81	2.99	1200
-	-	-	-	34	10	24	28	3.87	5.78	1200
-	-	-	-	30	6	24	30	4.16	7.23	1400
-	-	-	-	35	6	29	30	6.49	10.15	1400
8	4.5	50	M6x1	40	10	30	32	2.5	3.59	3000

❶ Ca（基本额定动载荷）、Coa（基本额定静载荷）
Ca (Basic Dynamic load rating), Coa (Basic static load rating)

❷ MBS0601~1205不含密封。需要使用防尘装置。
MBS0601~1205 do not contain a seal. It is necessary to use a dust-prevention device.

滚珠丝杠
Ball Screw

DIN标准SBC精密转造滚珠丝杠
DIN Standard SBC Precision Rolled Ball Screw

DIN标准SBC精密转造滚珠丝杠
DIN Standard SBC Precision Rolled Ball Screw

类型与特性
Types and features

SBC精密转造滚珠丝杠符合欧洲DIN标准的要求。
SBC Precision Rolled Ball Screw follows European DIN standards.
螺杆轴能以极高的精度旋转，滚动面经过磨削可符合P3（JIS: C3）等级的要求。
The screw shaft is rolled with high accuracy and then the raceways are ground to meet the P3(JIS: C3) grade.
这些滚珠具有高刚度、高精度，并能平稳运动。
These ball screws provide high rigidity, high accuracy, and smooth motion.

(1) 欧洲DIN标准 European DIN standards

欧洲DIN标准产品符合DIN 69 051/5标准。
European DIN standard products follow the DIN 69 051/5 standard.

(2) 高精度导程 High accuracy lead (P3, P5, T7)

高精度导程具有P3、P5和T7的精度等级
High Accuracy lead s are available in P3, P5, and T7 grades.

(3) 滚珠丝杠螺母的滚珠滚动面全都采用磨削螺纹 The ball raceways of the ball screw nut are all thread-ground

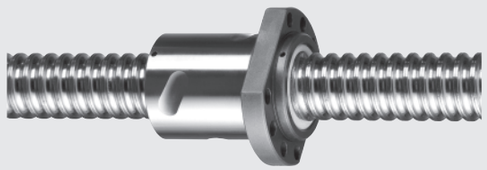
螺纹形状经过磨削精整加工，可确保高刚度、高精度和平稳运动。
The thread form is finish ground to provide high rigidity, high accuracy and smooth motion.

(4) 存货充足 Always in stock

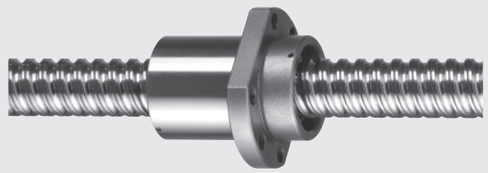
滚珠丝杠存货充足，可确保快速交付。
Ball Screws are always available for fast delivery time.

(5) 严格的质量控制 High quality control

SBC执行严格的质量控制以确保滚珠丝杠能满足用户的需求。
SBC provides high Quality Control to ensure the ball screws meet your expectations.



DK（精密转造滚珠丝杠）
DK (Precision rolled Ball Screw)



DH（长导程转造滚珠丝杠）
DH (Long lead rolled Ball Screw)

螺杆轴型号
Screw Shaft Model No.

（单位Unit : mm）

型号 Model No.	直径 Diameter	导程 Lead	最大长度 Max. Length	精度 Accuracy
RM1605	15.6	05	3000	P3, P5, T7
RM2005	19.6	05	4000	P3, P5, T7
RM2020	19.6	20	4000	P3, P5, T7
RM2505	24.6	05	5000	P3, P5, T7
RM2510	24.6	10	5000	P3, P5, T7
RM2525	24.6	25	5000	P3, P5, T7
RM3205	31.6	05	6000	P3, P5, T7
RM3210	31.6	10	6000	P3, P5, T7
RM3220	31.6	20	6000	P3, P5, T7
RM4005	39.6	05	6000	P3, P5, T7
RM4010	39.6	10	6000	P3, P5, T7
RM4020	39.6	20	6000	P3, P5, T7
RM4040	39.6	40	6000	P3, P5, T7
RM5010	49.5	10	6000	P3, P5, T7
RM5020	49.5	20	6000	P3, P5, T7
RM6310	62.5	10	6000	P3, P5, T7
RM6320	62.5	20	6000	P3, P5, T7
RM8010	79.5	10	7000	P3, P5, T7
RM8020	80	20	7000	P3, P5, T7

※ SBC严格遵循DIN标准和JIS标准。
SBC follows DIN and JIS Standards.

DIN标准 DIN Standard	IS标准 JIS Standard
P3	C3
P5	C5
T7	C7

滚珠丝杠
Ball Screw

DIN标准SBC精密转造滚珠丝杠
DIN Standard SBC Precision Rolled Ball Screw

订购实例
Ordering Example

[订购螺母]
[The Nut Ordering]

20 05 DK – S
[1] [2] [3] [4]

[1] 直径
Diameter
[2] 导程
Lead
[3] 螺母类型：DK、DH
Nut Type : DK, DH
[4] 预载：S（间隙型）
Preload : S (Clearance Type)

※ 如果只订购螺母，预载只能是S型（间隙型）。
When ordering only a nut, the preload is only S type (Clearance type).

[订购螺杆轴]
[The Screw shaft Ordering]

RM 2005 – 1500L – T7
[1] [2] [3]

[1] 型号
Model No.
[2] 螺杆轴长度
Screw shaft length
[3] 精度
Accuracy

※ 请参见规范了解型号说明。
Refer to the specifications for the Model No.
※ 单独螺杆轴只有T7的精度等级。.
Individual screw shafts are only available in the T7 precision grade.

[订购]
[Ordering]

2005 DK – A – 1 – 1300 / 1500 – T7 – R
[1] [2] [3] [4] [5] [6] [7]

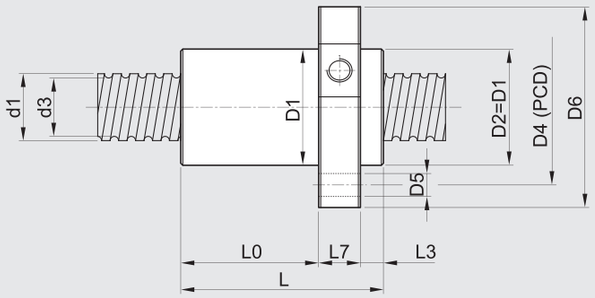
[1] 型号：DK、DH
Model No. : DK, DH
[2] 预载：S（间隙型）、A（非间隙型）
Preload : S (Clearance Type), A (Non-backlash Type)
[3] 螺母数量：螺杆轴上的螺母数量
Nut Quantity : Nut Quantity on Screw shaft
[4] 螺纹长度：无符号（未处理）
Thread Length : No Symbol (No processing)
[5] 总长度
Total Length
[6] 精度：P3、P5、T7
Accuracy : P3, P5, T7
[7] 表面处理：无符号（标准）、R（表面处理）
Surface treatment : No Symbol (Standard), R (Surface treatment)

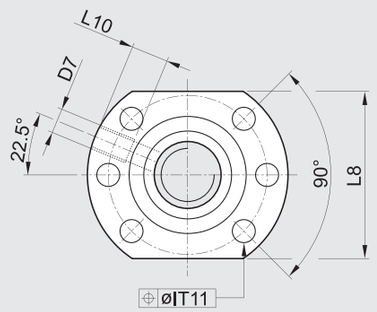
※ 如需更高的精度或刚度，建议使用螺杆-螺母组合。
A screw-nut assembly is recommended if high accuracy or rigidity is required.
※ 如需表面处理，请标记表面处理类型。
For surface treatment, mark the type of surface treatment.
※ 如需进行端部加工，请附加图纸。
If end machining is required, please attach a drawing.
※ 请参见规范了解精度说明。.
Refer to the specifications for the Accuracy.

滚珠丝杠
Ball Screw

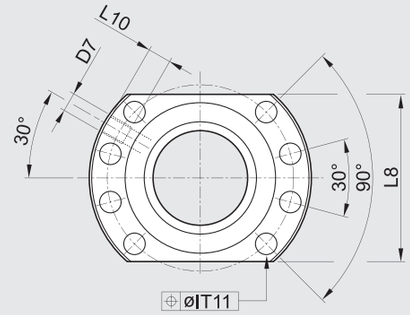
DIN标准SBC精密转造滚珠丝杠
DIN Standard SBC Precision Rolled Ball Screw

DK型精密转造滚珠丝杠
DK Type Precision Rolled Ball Screw





[DK1605~3210]



[DK4005~8010]

(单位Unit : mm)

型号 Model No.	d1 (标称直径) (Screw shaft outer diameter)	Ph (导程) (Lead)	do (滚珠圆直径) (Ball circle diameter)	Da (滚珠直径) (Ball Diameter)	d3 (根圆直径) (Root - diameter)	i (回路数) (No. of circuits)	Sa	D1g6	D4 (PCD)	D5	D6 h13
DK 1605	15.6	5	16	3.5	12.7	3	0.09	28	38	5.5	48
DK 2005	19.6	5	20	3.5	16.7	3	0.09	36	47	6.6	58
DK 2505	24.6	5	25	3.5	21.7	3	0.09	40	51	6.6	62
DK 3205	31.6	5	32	3.5	28.7	4	0.09	50	65	9	80
DK 3210	31.6	10	32	5.556	27.1	3	0.15	50	65	9	80
DK 4005	39.6	5	40	3.5	36.7	5	0.09	63	78	9	93
DK 4010	39.6	10	40	7.144	34.0	4	0.18	63	78	9	93
DK 5010	49.5	10	50	7.144	43	4	0.18	75	93	11	110
DK 6310	62.5	10	63	7.144	56.9	5	0.18	90	108	11	125
DK 8010	79.5	10	80	7.144	73.9	6	0.18	105	125	13.5	145

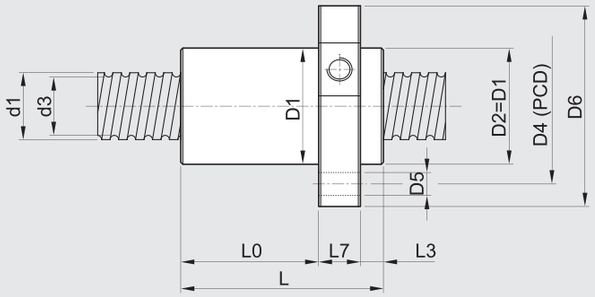
L±1	L0±1	L3-0.5	L7h13	L8h13	D7	L10	Ca [kN]	Coa [kN]	最大长度 Max. Length	螺母质量 Nut Mass [kg]	螺杆轴质量 Screw shaft Mass [kg/m]	螺杆轴惯性力矩 Screw shaft Moment of Inertia [kg·m m²/m]
48.5	33	5.5	10	40	M6x1	8	9.5	10.9	3000	0.25	1.2	32
48.5	33	5.5	10	44	M6x1	8	11.5	15.5	4000	0.35	2.0	85
49	33	6.0	10	48	M6x1	8	13.1	20.2	5000	0.37	3.3	225
57	39	6.0	12	62	M6x1	8	19.3	36.3	6000	0.7	5.6	645
73	55	6.0	12	62	M6x1	8	26.4	39	6000	0.8	5.3	580
66	45	7.0	14	70	M8x1	10	26.3	59.2	6000	1.2	9.0	1650
88.5	67.5	7.0	14	70	M8x1	10	64.9	109	6000	1.4	8.3	1400
92	69	7.0	16	85	M8x1	10	66.4	134.3	6000	2	13.5	3700
103.5	78.5	7.0	18	95	M8x1	10	93.8	229.7	6000	3	22	9870
121	92	9.0	20	110	M8x1	10	121.9	374.9	7000	3.9	36.4	26850

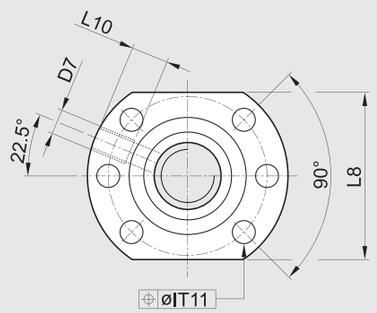
❶ Ca（基本额定动载荷）、Coa（基本额定静载荷）
Ca (Basic Dynamic load rating), Coa (Basic static load rating)

滚珠丝杠
Ball Screw

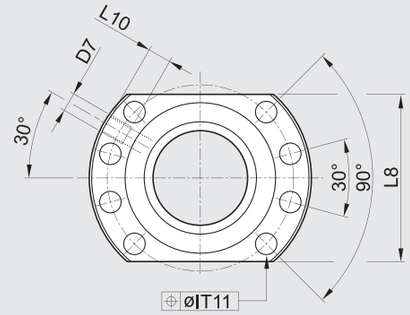
DIN标准SBC精密转造滚珠丝杠
DIN Standard SBC Precision Rolled Ball Screw

DH型长导程转造滚珠丝杠
DH Type Long Lead Rolled Ball Screw





[DH2020~3220]



[DH4020~8020]

(单位Unit : mm)

型号 Model No.	d1 (标称直径) (Screw shaft outer diameter)	Ph (导程) (Lead)	do (滚珠圆直径) (Ball circle diameter)	Da (滚珠直径) (Ball Diameter)	d3 (根圆直径) (Root - diameter)	i (回路数) (No. of circuits)	Sa	D1g6	D4 (PCD)	D5	D6 h13
DH 2020	19.6	20	20.5	3.5	16.7	3.6	0.08	36	47	6.6	58
DH 2510	24.6	10	25.5	3.5	21.7	5.6	0.09	40	51	6.6	62
DH 2525	24.6	25	25.5	3.5	21.7	3	0.08	40	51	6.6	62
DH 3220	31.6	20	33	5.556	27.1	5.6	0.15	56	71	9	86
DH 4020	39.6	20	41	5.556	35.2	5.6	0.15	63	78	9	93
DH 4040	39.6	40	41.5	7.144	34	3.6	0.18	70	85	9	100
DH 5020	49.5	20	51.5	6.35	44.6	5.6	0.16	75	93	11	110
DH 6320	62.5	20	64.5	7.144	56.9	5.6	0.18	95	115	13.5	135
DH 8020	80	20	83.2	9.525	73.7	4	0.18	125	145	13.5	165

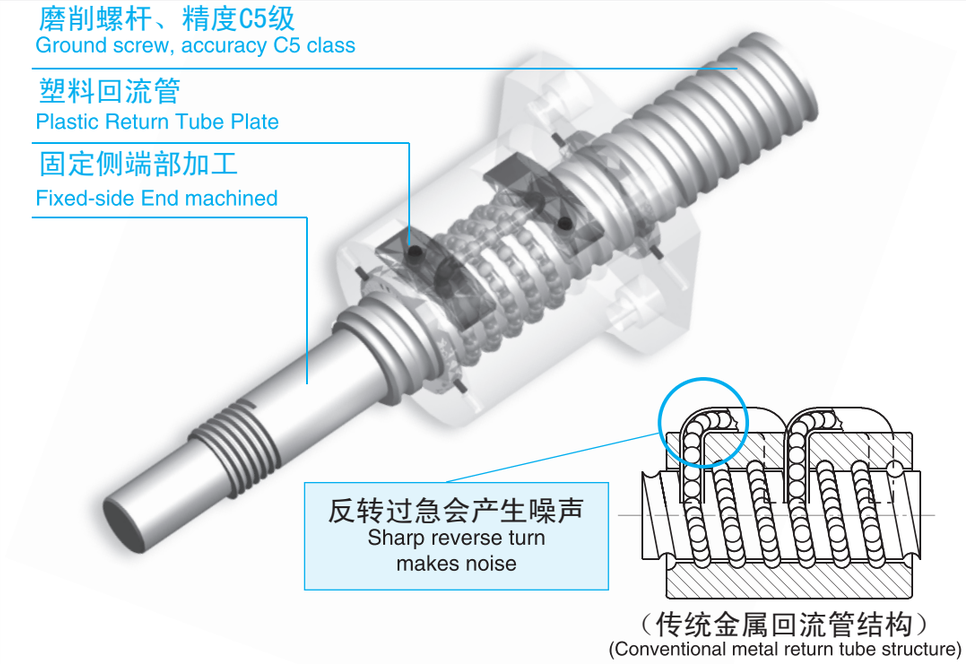
L±1	L0±1	L3-0.5	L7h13	L8h13	D7	L10	Ca [kN]	Coa [kN]	最大长度 Max. Length	螺母质量 Nut Mass [kg]	螺杆轴质量 Screw shaft Mass [kg/m]	螺杆轴惯性力矩 Screw shaft Moment of Inertia [kg·m²/m]
61	37	14	10	44	M6x1	8	10.8	18.6	4000	0.24	1.9	73
53	27	16	10	48	M6x1	8	22.9	41.2	5000	0.45	3.3	225
71	45.5	16	10	48	M6x1	8	13.1	26	5000	0.3	3.3	225
87	56	19	12	68	M6x1	8	47.2	83.2	6000	1.4	5.3	580
87	53.5	20	14	70	M8x1	10	52.2	103.6	6000	1.6	7.6	1520
110	75	21	14	77	M8x1	10	59.7	108.9	6000	2.4	8.4	1430
91	53	22	16	85	M8x1	10	78.8	188.7	6000	2.2	13.6	3730
92	48	24	20	100	M8x1	10	103.1	270.8	6000	3.8	22	9050
154	129	-	25	130	M8x1	10	83.2	302.9	7000	5.2	36.4	26850

❶ Ca（基本额定动载荷）、Coa（基本额定静载荷）
Ca (Basic Dynamic load rating), Coa (Basic static load rating)

滚珠丝杠
Ball Screw

FA-SFA系列磨削滚珠丝杠
Ground Ball Screw for FA- SFA Series

SFA系列磨削滚珠丝杠允许进行固定端部加工，而且价格合理、精度一流。
SFA ground ball screws have fixed-end machining with reasonable price and high accuracy.



（传统金属回流管结构）
(Conventional metal return tube structure)

[树脂回流管]
[Resin return tube plate]

树脂回流板能显著减少常见于传统金属回流板内的噪声，而且能确保滚珠平稳循环运行。
Resin return plate dramatically reduces the noise which occurs in conventional metal return plate and achieves smooth ball circulation.

产品
Products

螺杆直径：　　mm，导程：10、20mm
Screw diameter 12~20mm and lead 10, 20mm

型号 Model No.	直径（mm） Diameter (mm)	导程（mm） Lead (mm)	长度（mm） Length (mm)	预载 Preload	精度 Accuracy
SFA1210	12	10	410	P2	C5
			610		
SFA1510	15	10	500	P2	C5
			700		
			1000		
SFA1520	15	20	500	P2	C5
			700		
			1000		
SFA2010	20	10	700	P2	C5
			1000		
			1200	P1	C7
SFA2020	20	20	700	P2	C5
			1000		
			1200	P1	C7

[取决于导程的预载组合]
[Preload combination according to lead]

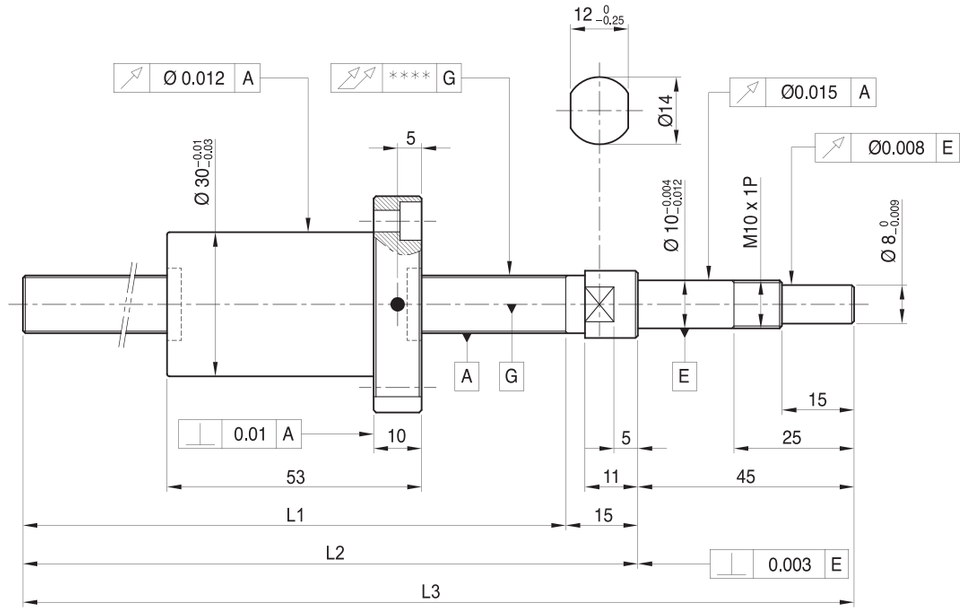
精度 Accuracy	预载 Preload	轴向间隙 Axial Clarence
C7	P1（间隙） P1 (Clearance)	X
C5	P2（轻预载） P2 (Light Preload)	X

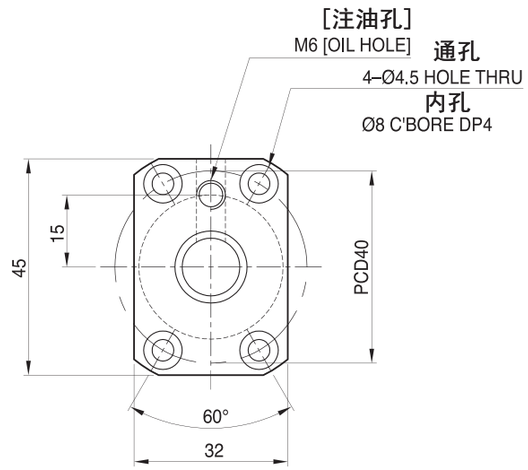
※ 请参见规范了解预载的说明。
Refer to the specifications for preload
※ SFA型符合JIS标准的要求。
SFA type follows JIS Standard.
※ 如需更高预载，请联系SBC公司。.
Contact SBC for higher preload.

滚珠丝杠
Ball Screw

FA–SFA系列磨削滚珠丝杠
Ground Ball Screw for FA- SFA Series

SFA1210–螺杆直径 Ø12，导程10mm
SFA1210-Screw diameter Ø12 and lead 10mm





(单位Unit : mm)

型号 Model No.	L1	L2	L3	轴径向跳动 Shaft run-out
SFA1210-P2-410	350	365	410	0.060
SFA1210-P2-610	550	565	610	0.075

滚珠圆直径 Ball circle diameter	12.85
直径 x 导程 Diameter x lead	12 x 10
滚珠直径 Ball Diameter	2.5
螺纹方向 Thread direction	RIGHT
回路数 No. of circuits	2.7x1
导程角 Lead Angle	13.91°
精度 Accuracy	C5 (0.018)
预载 Preload	0.24 (kN)
基本额定动载荷（Ca） Basic dynamic load rating (Ca)	4 (kN)
基本额定静载荷（Coa） Basic static load rating (Coa)	6.2 (kN)

订购 Ordering

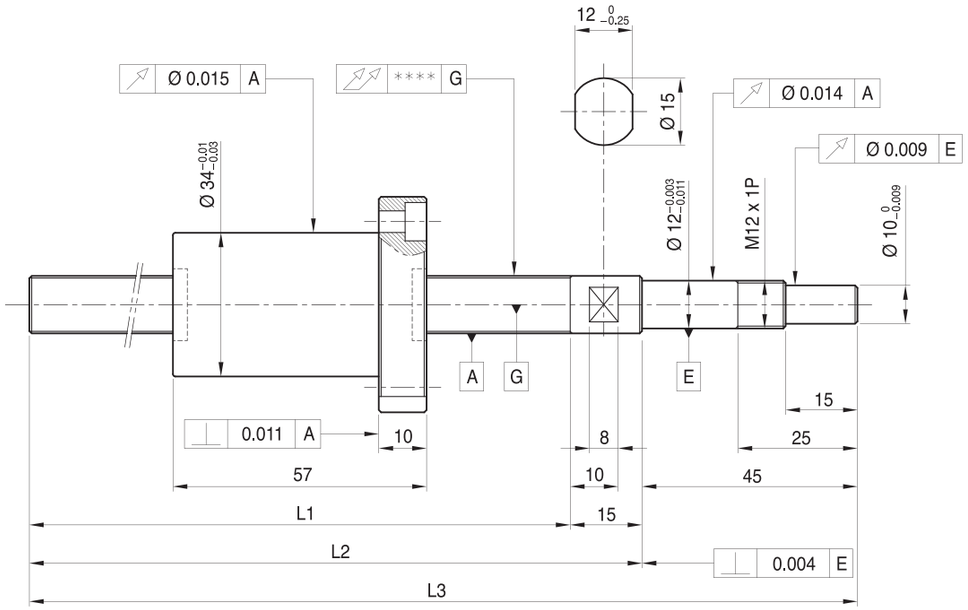
SFA1210 – P2 – 640 – C5
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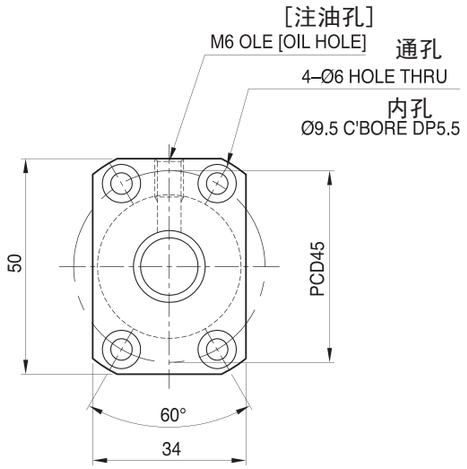
[1] 型号 Model No.
[2] 预载 Preload
[3] 长度 Length
[4] 精度 Accuracy

滚珠丝杠
Ball Screw

FA–SFA系列磨削滚珠丝杠
Ground Ball Screw for FA- SFA Series

SFA1510–螺杆直径 Ø 15，导程10mm
SFA1510-Screw diameter Ø15 and lead 10mm





(单位Unit : mm)

型号 Model No.	L1	L2	L3	轴径向跳动 Shaft run-out
SFA1510-P2-500	440	455	500	0.040
SFA1510-P2-700	640	655	700	0.065
SFA1510-P2-1000	940	955	1000	0.085

滚珠圆直径Ball circle diameter	15.5
直径 x 导程 Diameter x lead	15 x 10
滚珠直径 Ball Diameter	3.175
螺纹方向 Thread direction	RIGHT
回路数 No. of circuits	2.7 x 1
导程角 Lead Angle	11.6°
精度 Accuracy	C5 (0.018)
预载 Preload	0.37 (kN)
基本额定动载荷（Ca） Basic dynamic load rating (Ca)	5.9 (kN)
基本额定静载荷（Coa） Basic static load rating (Coa)	9.3 (kN)

订购 Ordering

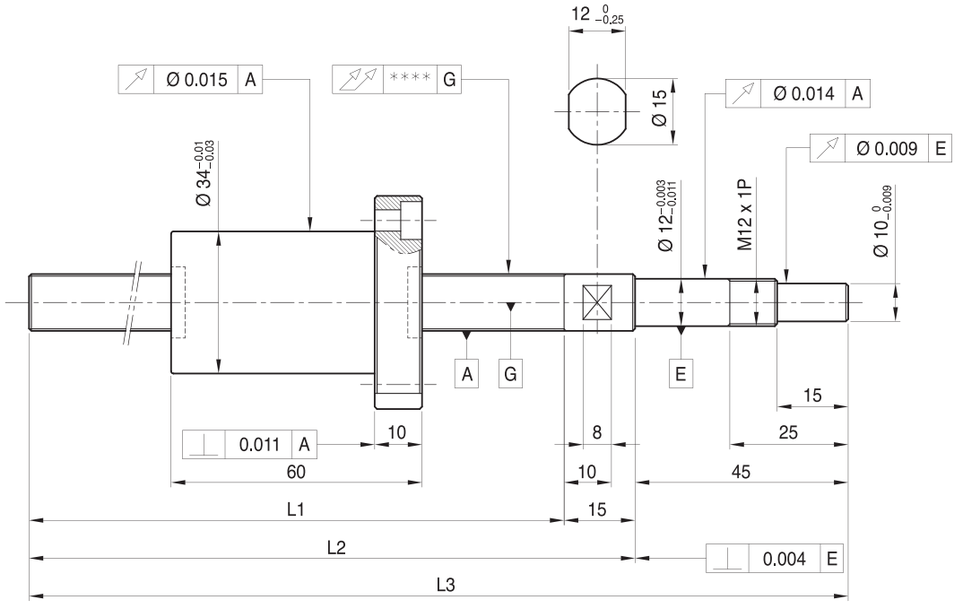
SFA1510 – P2 – 500 – C5
[1] [2] [3] [4]

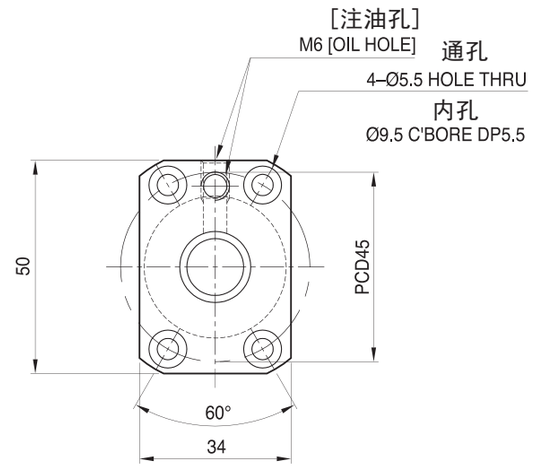
[1] 型号 Model No.
[2] 预载 Preload
[3] 长度 Length
[4] 精度 Accuracy

滚珠丝杠
Ball Screw

FA-SFA系列磨削滚珠丝杠
Ground Ball Screw for FA- SFA Series

SFA1520-丝杠直径Ø15，导程20mm
SFA1520-Screw diameter Ø15 and lead 20mm





(单位Unit : mm)

型号 Model No.	L1	L2	L3	轴径向跳动 Shaft run-out
SFA1520-P2-500	440	455	500	0.040
SFA1520-P2-700	640	655	700	0.065
SFA1520-P2-1000	940	955	1000	0.085

滚珠圆直径Ball circle diameter	15.5
直径 x 导程 Diameter x lead	15 x 20
滚珠直径 Ball Diameter	3.175
螺纹方向 Thread direction	RIGHT
回路数 No. of circuits	1.8 x 1
导程角 Lead Angle	22.33°
精度 Accuracy	C5 (0.018)
预载 Preload	0.37 (kN)
基本额定动载荷（Ca） Basic dynamic load rating (Ca)	5.68 (kN)
基本额定静载荷（Coa） Basic static load rating (Coa)	8.58 (kN)

订购 Ordering

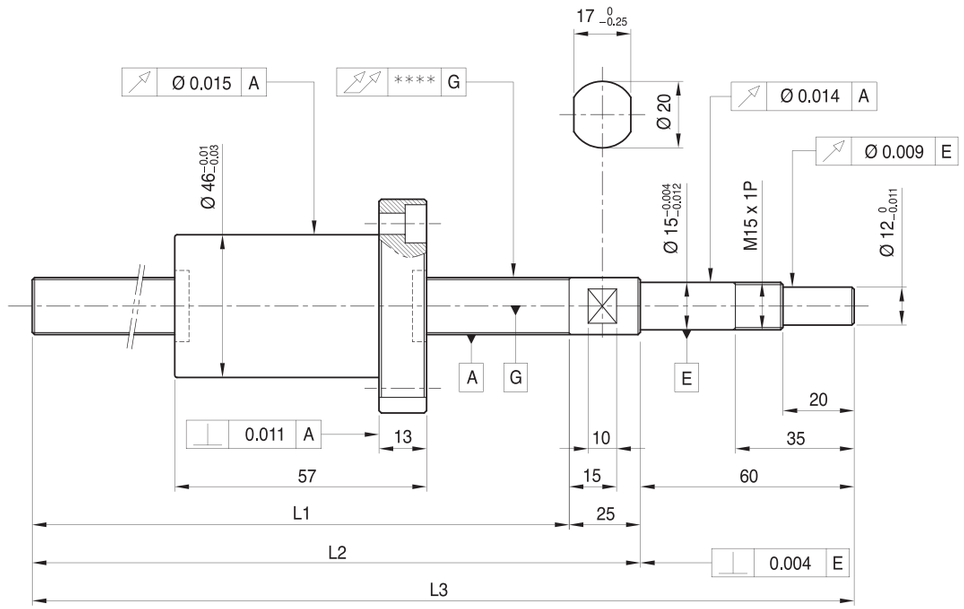
SFA1520 – P2 – 500 – C5
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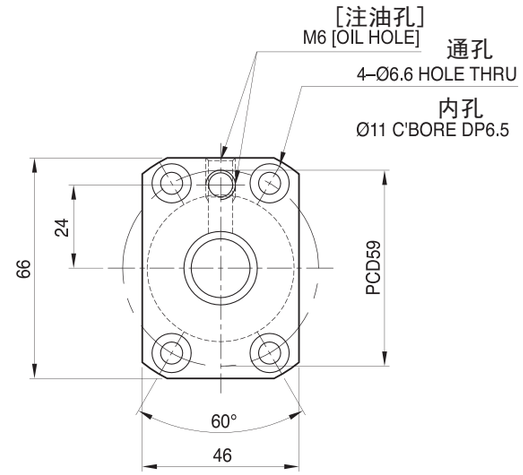
[1] 型号 Model No.
[2] 预载 Preload
[3] 长度 Length
[4] 精度 Accuracy

滚珠丝杠
Ball Screw

FA–SFA系列磨削滚珠丝杠
Ground Ball Screw for FA- SFA Series

SFA2010–螺杆直径 Ø 20，导程10mm
SFA2010-Screw diameter Ø20 and lead 10mm





(单位Unit : mm)

型号 Model No.	L1	L2	L3	轴径向跳动 Shaft run-out
SFA2010-P2-700	615	640	700	0.065
SFA2010-P2-1000	915	940	1000	0.085
SFA2010-P1-1200	1115	1140	1200	0.110

轴长度 Shaft length	700, 1000	1200
滚珠圆直径 Ball circle diameter	21.35	
直径 x 导程 Diameter x lead	20 x 10	
滚珠直径 Ball Diameter	3.969	
螺纹方向 Thread direction	RIGHT	
回路数 No. of circuits	2.7 x 1	
导程角 Lead Angle	8.48°	
精度 Accuracy	C5	C7
预载 Preload	0.42 (kN)	0
基本额定动载荷（Ca） Basic dynamic load rating (Ca)	9.58 (kN)	
基本额定静载荷（Coa） Basic static load rating (Coa)	16.98 (kN)	

订购 Ordering

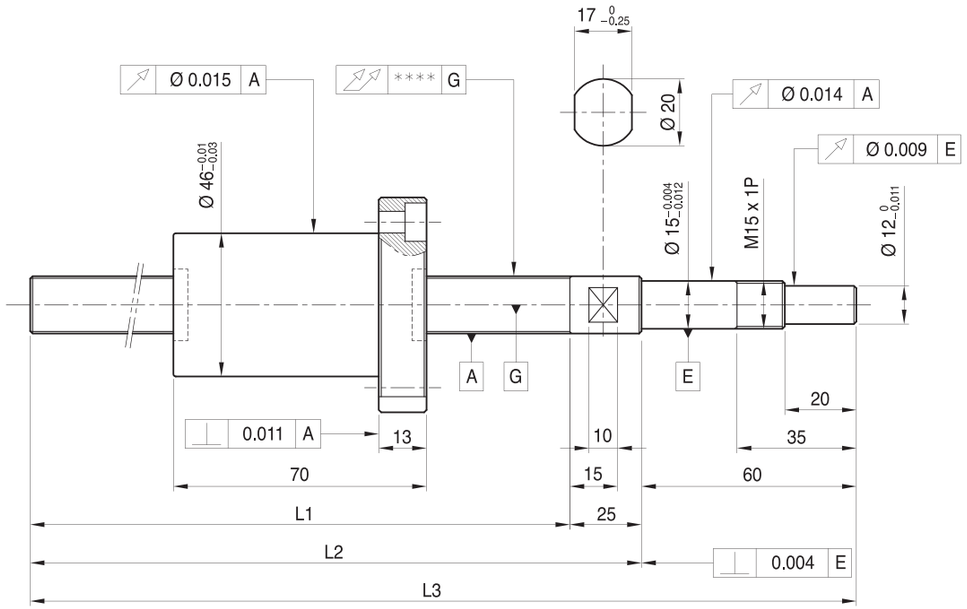
SFA2010 – P2 – 700 – C5
[1] [2] [3] [4]

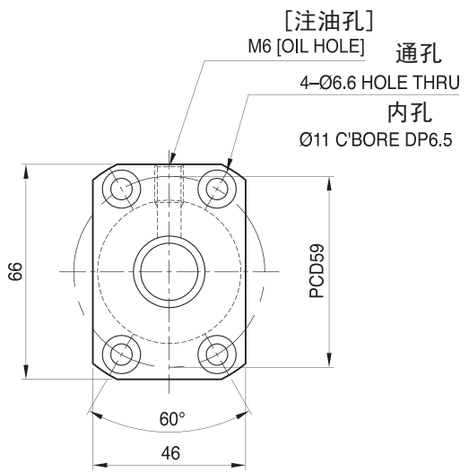
[1] 型号 Model No.
[2] 预载 Preload
[3] 长度 Length
[4] 精度 Accuracy

滚珠丝杠
Ball Screw

FA–SFA系列磨削滚珠丝杠
Ground Ball Screw for FA- SFA Series

SFA2020–螺杆直径 Ø 20，导程20mm
SFA2020-Screw diameter Ø20 and lead 20mm





（单位Unit : mm）

型号 Model No.	L1	L2	L3	轴径向跳动 Shaft run-out
SFA2020-P2-700	615	640	700	0.065
SFA2020-P2-1000	915	940	1000	0.085
SFA2020-P1-1200	1115	1140	1200	0.110

轴长度	Shaft length	700, 1000	1200
滚珠圆直径	Ball circle diameter	20.75	
直径 x 导程	Diameter x lead	20 x 20	
滚珠直径	Ball Diameter	3.175	
螺纹方向	Thread direction	RIGHT	
回路数	No. of circuits	1.8 x 1	
导程角	Lead Angle	17.05°	
精度	Accuracy	C5	C7
预载	Preload	0.42 (kN)	0
基本额定动载荷（Ca）Basic dynamic load rating (Ca)		4.97 (kN)	
基本额定静载荷（Coa）Basic static load rating (Coa)		9.39 (kN)	

订购 Ordering

SFA2020 – P2 – 700 – C5
[1] [2] [3] [4]

[1] 型号 Model No.
[2] 预载 Preload
[3] 长度 Length
[4] 精度 Accuracy

支撑单元
Support Unit

固定端支撑单元/支撑端支撑单元/螺纹端加工建议

Fixed-End Support Unit / Supported-End Support Unit /
Recommended Screw End Machining

支撑单元
Support Unit

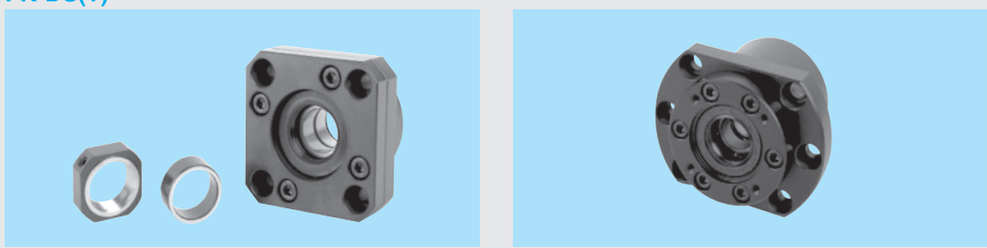
固定端支撑单元
Fixed-End Support Unit

固定端支撑单元
Fixed-End Support Unit

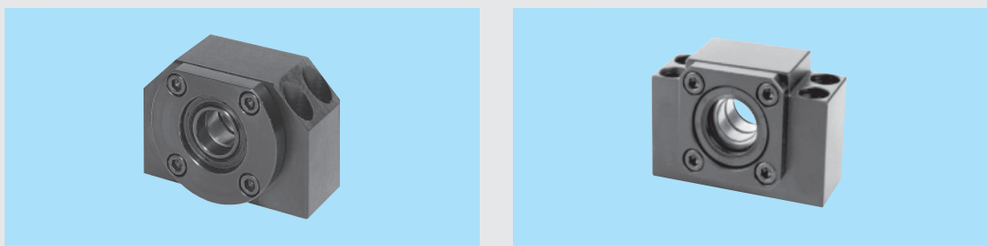
FK



FK-DS(T)

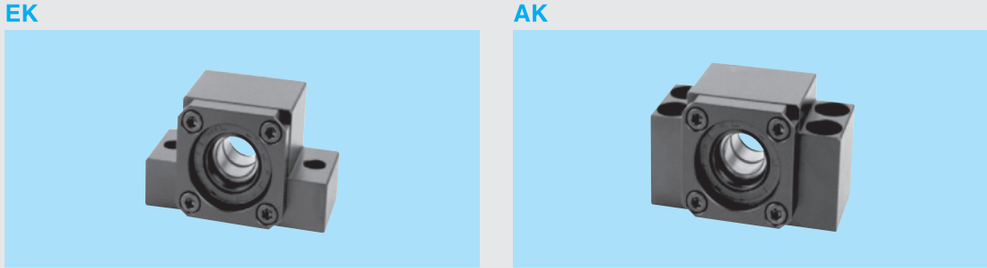


BK



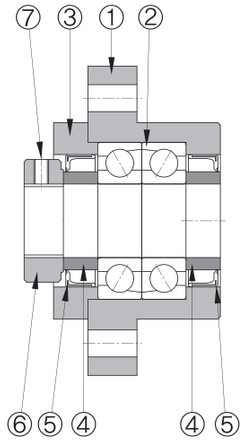
BK-DS

EK



AK

固定端支撑单元的结构
Structure of Fixed-End Support Unit

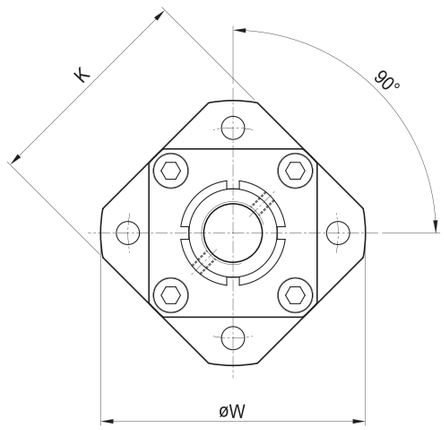


编号 No.	部件号 Part Name	数量 Q' ty
①	端盖壳 HOUSING	1
②	轴承 BEARING	1SET
③	安装架 BRACKET	1
④	轴环 COLLAR	2
⑤	密封 SEAL	2
⑥	环形螺母 RING NUT	1
⑦	定位螺钉SET SCREW	1

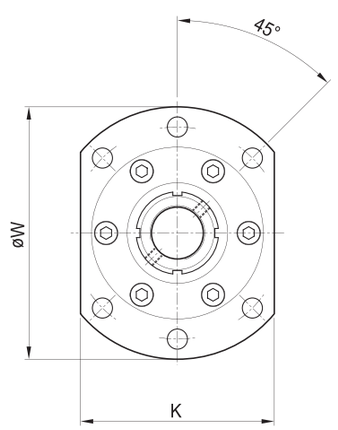
支撑单元
Support Unit

固定端支撑单元
Fixed-End Support Unit

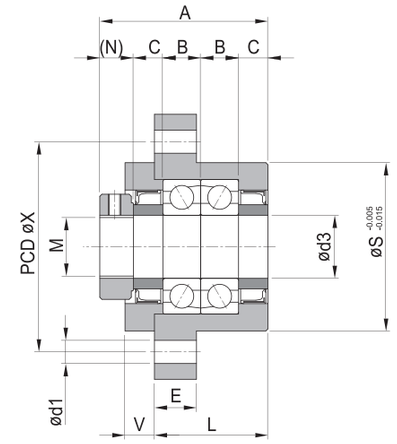
FK型固定端支撑单元
FK Type Fixed-End Support Unit



[FK 8~20]



[FK 25~40]



(单位 Unit : mm)

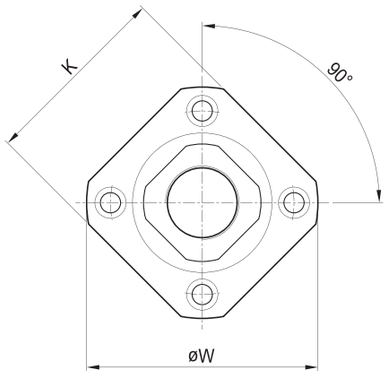
型号 Model No.	W	K	S	L	E	V	X (PCD)	d1
FK 8	43	35	28	21	7	5	35	3.4
FK 10	52	42	34	25	7	6	42	4.5
FK 12	54	44	36	25	8	6	44	4.5
FK 15	63	52	40	27	10	7	50	5.5
FK 20	85	68	57	37	15	7	70	6.6
FK 25	122	92	80	42	15	11	100	11
FK 30	138	106	90	45	16	12	116	11
FK 40	176	128	120	61	19	15	150	14

A	B	C	N	M	d3	基本额定动负荷 Basic Dynamic load rating [kN]	容许负荷 Permissible load [kN]	轴承型号 Bearing model No.
32	7	5	8	M8x0.75	8	1.6	-	608
38	8	7	8	M10x1	10	6.5	2.7	7000A
38	8	7	8	M12x1	12	7.1	3	7001A
40	9	7	8	M15x1	15	7.5	3.9	7002A
52	14	7	10	M20x1	20	17.9	9.5	7204A
62	15	10	12	M25x1.5	25	20.1	11.4	7205A
66	16	11	12	M30x1.5	30	28	16.2	7206A
82	18	16	14	M40x1.5	40	44.1	27.1	7208A

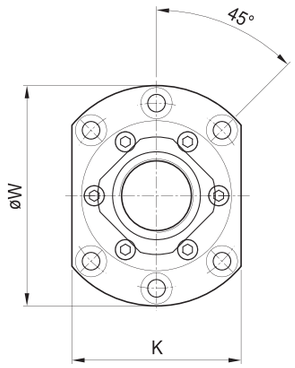
支撑单元
Support Unit

固定端支撑单元
Fixed-End Support Unit

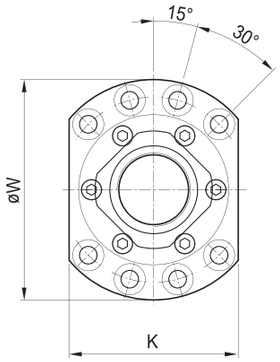
FK-DS(T) 型固定端支撑单元
FK-DS(T) Type Fixed-End Support Unit



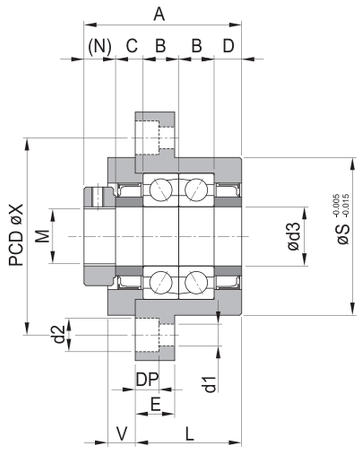
[FK 6DS~20DS, FK 25DT, FK 30DT]



[FK 25DS~30DS]



[FK 40DS]



(单位 Unit : mm)

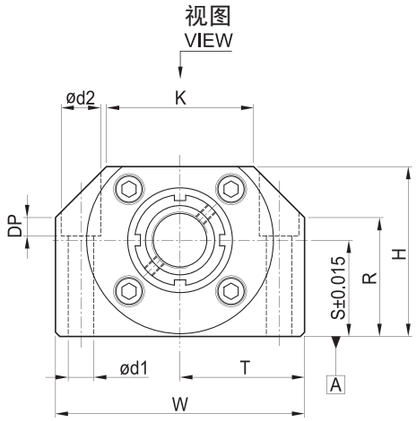
型号 Model No.	W	K	S	L	E	V	X (PCD)	d1	d2	DP
FK 6DS	36	28	22	20	7	-	36	3.4	6	4
FK 8DS	43	35	28	23	9	-	35	3.4	6.5	4
FK 10DS	52	44	34	23	6	5	42	4.5	8	5
FK 12DS	54	44	36	23	6	5	44	4.5	8	5
FK 15DS	63	52	40	26	9	6	50	5.5	9.5	6
FK 17DS	77	61	50	35	12	10	62	6.6	11	10
FK 20DS	85	68	57	42	12	10	70	6.6	11	10
FK 25DS	122	92	80	42	15	12	100	11	17.5	11
FK 25DT	98	79	63	44	14	13	80	9	14	13
FK 30DS	138	106	90	45	15	14	116	11	17.5	11
FK 30DT	117	93	75	47	15	15	95	11	17.5	15
FK 40DS	176	128	120	61	18	18	150	14	20	13

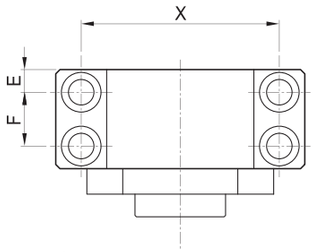
A	B	C	D	N	M	d3	基本额定动负荷 Basic Dynamic load rating [kN]	容许负荷 Permissible load [kN]	轴承型号 Bearing model No.
26.5	7	3.5	3.5	5.5	M6x0.75	6	-	-	606ZZ
33	7	6	6	7	M8x1	8	-	-	608ZZ
34	8	5	5	8	M10x1	10	6.5	2.7	7000A
34	8	5	5	8	M12x1	12	7.1	3	7001A
46	9	10	10	8	M15x1	15	7.5	3.9	7002A
52	12	9	9	10	M17x1	17	13.7	5.8	7203A
59	14	9	12	10	M20x1	20	17.9	9.5	7204A
62	15	10	10	12	M25x1.5	25	20.1	11.4	7205A
62	15	10	10	12	M25x1.5	25	20.1	11.4	7205A
66	16	11	11	12	M30x1.5	30	28	16.2	7206A
66	16	11	11	12	M30x1.5	30	28	16.2	7206A
82	18	16	16	14	M40x1.5	40	44.1	27.1	7208A

支撑单元
Support Unit

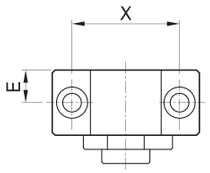
固定端支撑单元
Fixed-End Support Unit

BK型固定端支撑单元
BK Type Fixed-End Support Unit

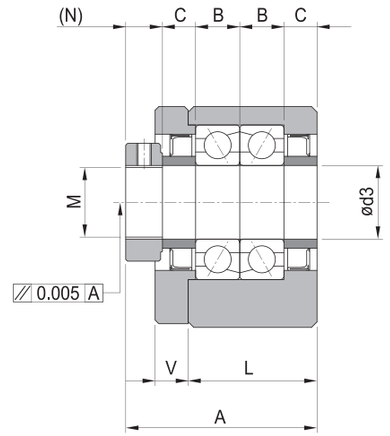




视图 VIEW [BK 10~40]



视图 VIEW [BK 8]



型号 Model No.	W	H	S	R	T	K	d1	d2	DP	X	E
BK 8	52	32	17	18.5	26	25	6.6	11	6.5	38	11.5
BK 10	60	39	22	26	30	34	6.6	11	6.5	46	6
BK 12	60	43	25	30	30	34	6.6	11	6.5	46	6
BK 15	70	48	28	33	35	40	6.6	11	6.5	54	6
BK 17	86	64	39	46	43	50	9	14	8.5	68	8
BK 20	88	60	34	42	44	52	9	14	8.5	70	8
BK 25	106	80	48	59	53	64	11	17.5	11	85	10
BK 30	128	89	51	63	64	76	14	20	13	102	11
BK 40	160	110	60	80	80	100	18	26	17.5	130	14

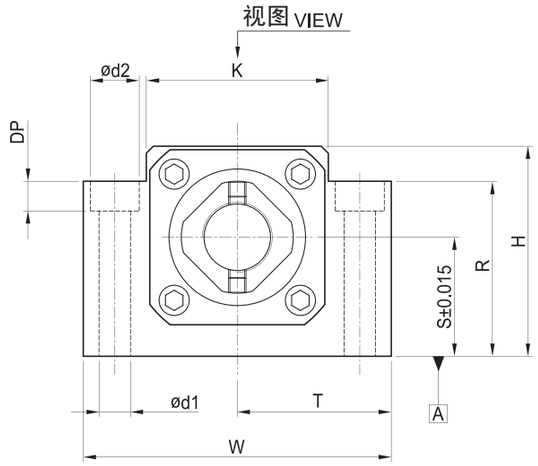
(单位 Unit : mm)

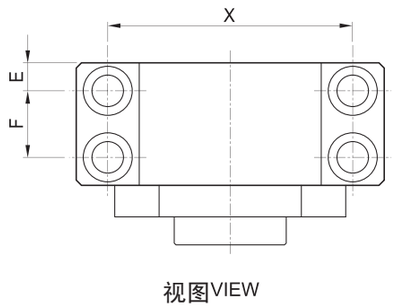
F	L	V	A	B	C	N	M	d3	基本额定动负荷 Basic Dynamic load rating [kN]	容许负荷 Permissible load [kN]	轴承型号 Bearing model No.
-	23	5	34	7	6	8	M8x0.75	8	-	-	608ZZ
13	25	6	38	8	7	8	M10x1	10	6.5	2.7	7000A
13	25	6	38	8	7	8	M12x1	12	7.1	3	7001A
15	27	7	40	9	7	8	M15x1	15	7.5	3.9	7002A
19	35	9	52	12	9	10	M17x1	17	13.7	5.8	7203A
19	35	9	52	12	9	10	M20x1	20	17.9	9.5	7004A
22	42	11	62	15	10	12	M25x1.5	25	20.1	11.4	7205A
23	45	12	66	16	11	12	M30x1.5	30	28	16.2	7206A
33	61	15	82	18	16	14	M40x1.5	40	44.1	27.1	7208A

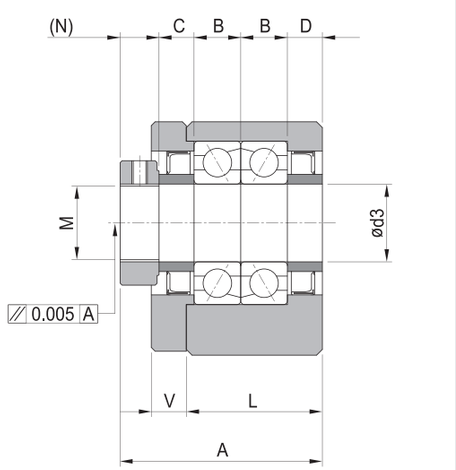
支撑单元
Support Unit

固定端支撑单元
Fixed-End Support Unit

BK-DS型固定端支撑单元
BK-DS Type Fixed-End Support Unit







(单位 Unit : mm)

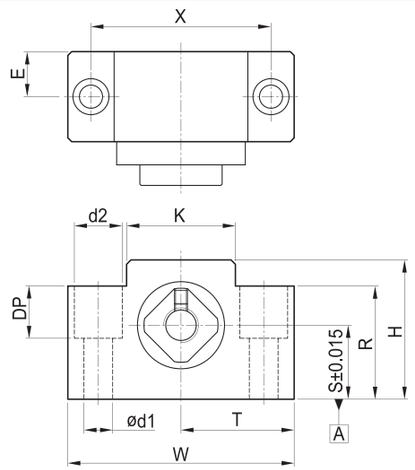
型号 Model No.	W	H	S	R	T	K	d1	d2	DP	X	E
BK 10DS	60	39	22	32.5	30	34	6.6	11	5	46	6
BK 12DS	60	43	25	35	30	35	6.6	11	6.5	46	6
BK 15DS	70	48	28	38	35	40	6.6	11	6.5	54	6
BK 17DS	86	64	39	55	43	50	9	14	8.5	68	8
BK 20DS	88	60	34	50	44	52	9	14	8.5	70	8
BK 25DS	106	80	48	70	53	64	11	17.5	11	85	10
BK 30DS	128	89	51	78	64	76	14	20	13	102	11
BK 40DS	160	110	60	90	80	100	18	26	17.5	130	14

F	L	V	A	B	C	D	N	M	d3	基本额定动负荷 Basic Dynamic load rating [kN]	容许负荷 Permissible load [kN]	轴承型号 Bearing model No.
13	25	6	38	8	7	7	8	M10x1	10	6.5	2.7	7000A
13	25	6	38	8	7	7	8	M12x1	12	7.1	3	7001A
15	27	6	40	9	7	7	8	M15x1	15	7.5	3.9	7002A
19	35	8	52	12	9	9	10	M17x1	17	13.7	5.8	7203A
19	35	8	52	12	9	9	10	M20x1	20	17.9	9.5	7004A
22	42	12	62	15	10	10	12	M25x1.5	25	20.1	11.4	7205A
23	45	14	66	16	11	11	12	M30x1.5	30	28	16.2	7206A
33	61	18	82	18	16	16	14	M40x1.5	40	44.1	27.1	7208A

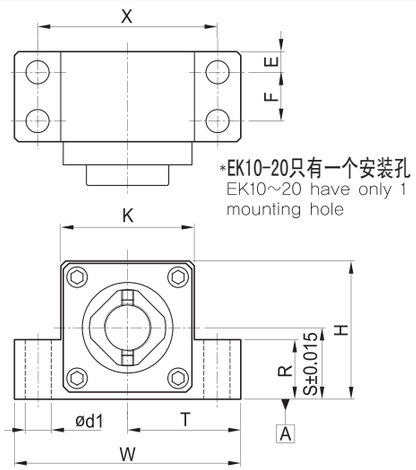
支撑单元
Support Unit

固定端支撑单元
Fixed-End Support Unit

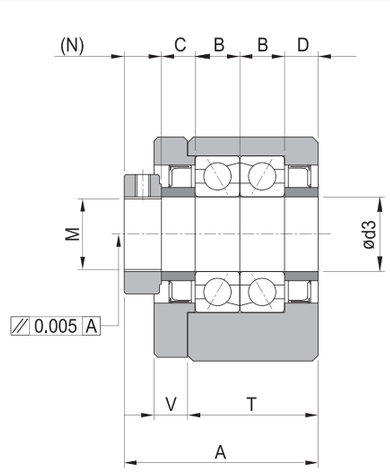
EK型固定端支撑单元
EK Type Fixed-End Support Unit



[EK 6~8]



[EK 10~25]



(单位 Unit : mm)

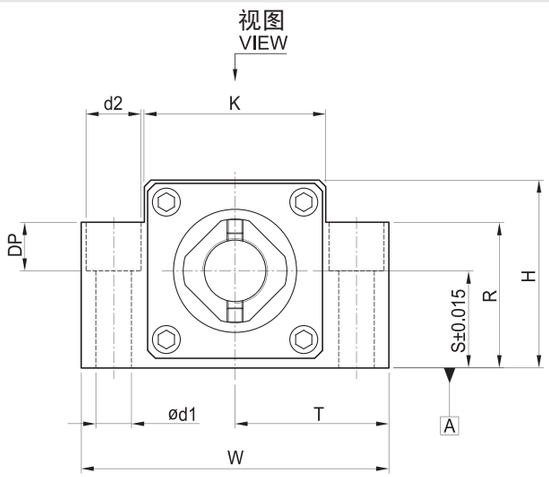
型号 Model No.	W	H	S	R	T	K	d1	d2	DP	X	E
EK 6	42	25	13	20	21	18	5.5	9.5	5	30	10
EK 8	52	32	17	26	26	25	6.6	11	12	38	11.5
EK 10	70	43	25	24	35	36	9	-	-	52	12
EK 12	70	43	25	24	35	36	9	-	-	52	12
EK 15	80	49	30	25	40	41	11	-	-	60	12.5
EK 20	95	58	30	25	42.5	56	11	-	-	75	21
EK 25	105	68	35	25	52.5	66	11	-	-	85	9

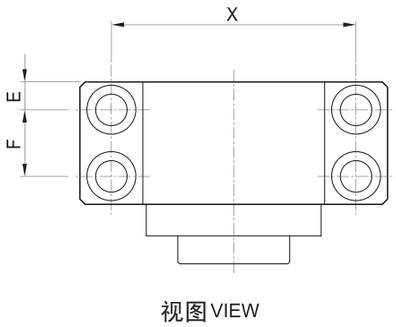
F	L	V	A	B	C	D	N	M	d3	基本额定动负荷 Basic Dynamic load rating [kN]	容许负荷 Permissible load [kN]	轴承型号 Bearing model No.
-	20	-	26.5	7	3.5	3.5	5.5	M6x0.75	6	-	-	606ZZ
-	23	-	32	7	5.5	5.5	7	M8x1	8	-	-	608ZZ
-	25	6	38	8	7	7	8	M10x1	10	6.5	2.7	7000A
-	24	6	38	8	7	7	8	M12x1	12	7.1	3	7001A
-	25	6	40	9	7	7	8	M15x1	15	7.5	3.9	7002A
-	42	10	59	14	9	12	10	M20x1	20	17.9	9.5	7204A
30	48	13	62	15	10	10	12	M25x1.5	25	20.1	11.4	7205A

支撑单元
Support Unit

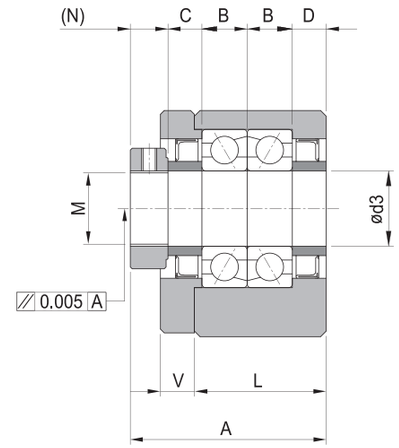
固定端支撑单元
Fixed-End Support Unit

AK型固定端支撑单元
AK Type Fixed-End Support Unit





视图 VIEW



（单位 Unit : mm）

型号 Model No.	W	H	S	R	T	K	d1	d2	DP	X	E
AK 10	70	43	25	35	35	36	8.5	14	11	52	12
AK 12	70	43	25	35	35	36	8.5	14	11	52	12
AK 15	80	49	30	40	40	41	11	17	15	60	12.5
AK 20	95	58	30	45	42.5	56	11	17	15	75	10

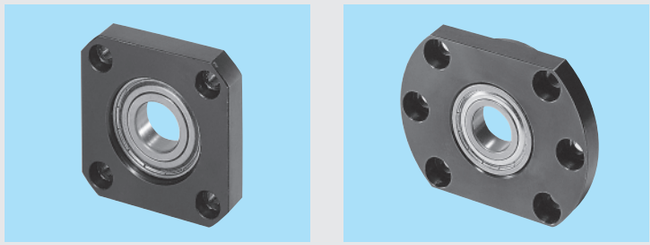
F	L	V	A	B	C	D	N	M	d3	基本额定动负荷 Basic Dynamic load rating [kN]	容许负荷 Permissible load [kN]	轴承型号 Bearing model No.
-	24	6	38	8	7	7	8	M10x1	10	6.5	2.7	7000A
-	24	6	38	8	7	7	8	M12x1	12	7.1	3	7001A
-	25	6	40	9	7	7	8	M15x1	15	7.5	3.9	7002A
22	42	10	59	14	9	12	10	M20x1	20	17.9	9.5	7204A

支撑单元
Support Unit

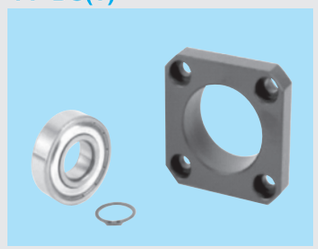
支撑端支撑单元
Supported-End Support Unit

支撑端支撑单元
Supported-End Support Unit

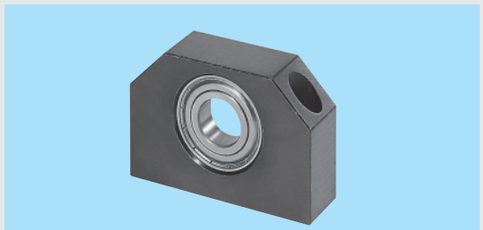
FF



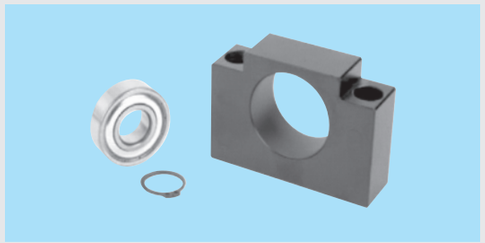
FF-DS(T)



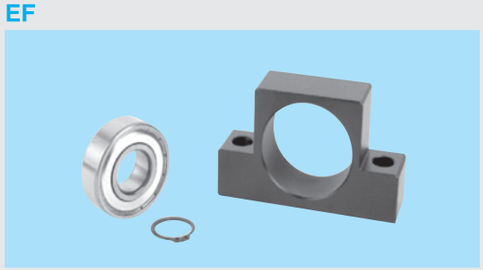
BF



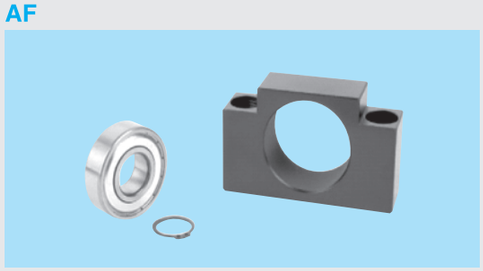
BF-DS



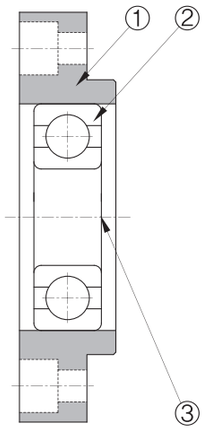
EF



AF



支撑端支撑单元的结构
Structure of Supported-End Support Unit

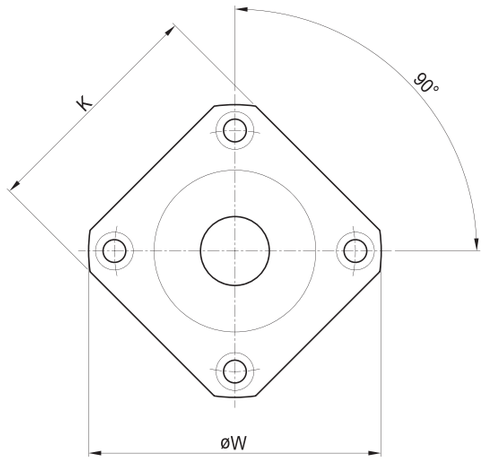


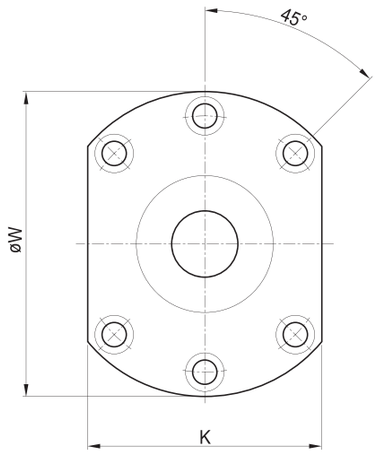
编号 No.	部件号 Part Name	数量 Q' ty
①	端盖壳 HOUSING	1
②	轴承 BEARING	1
③	止推环 SNAP RING	1

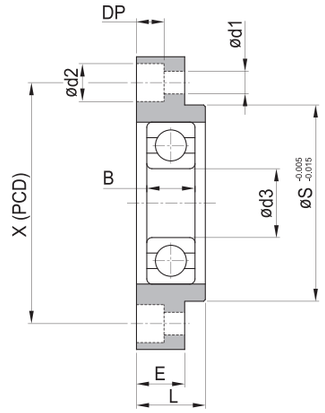
支撑单元
Support Unit

支撑端支撑单元
Supported-End Support Unit

FF型支撑端支撑单元
FF Type Supported-End Support Unit







(单位 Unit : mm)

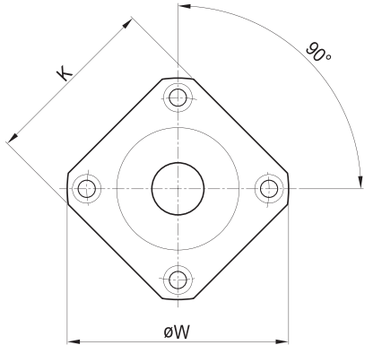
型号 Model No.	W	K	S	L	E	X (PCD)
FF 8	43	35	28	11	6	35
FF 10	52	42	34	12	7	42
FF 12	54	44	36	15	8	44
FF 15	63	52	40	17	9	50
FF 20	85	68	57	20	14	70
FF 25	122	92	80	30	15	100
FF 30	138	106	90	32	15	116
FF 40	176	128	120	36	18	150

d1	d2	DP	B	d3	止推环 Snap ring	轴承型号 Bearing model No.
3.4	6.5	4	6	6	C6	606ZZ
4.5	8	5	7	8	C8	608ZZ
4.5	8	5	8	10	C10	6000ZZ
5.5	9.5	6	9	15	C15	6002ZZ
6.6	11	10	14	20	C20	6204ZZ
11	17.5	11	15	25	C25	6205ZZ
11	17.5	11	16	30	C30	6206ZZ
14	20	13	18	40	C40	6208ZZ

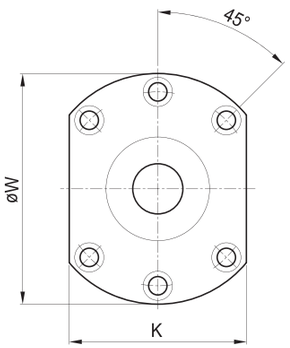
支撑单元
Support Unit

支撑端支撑单元
Supported-End Support Unit

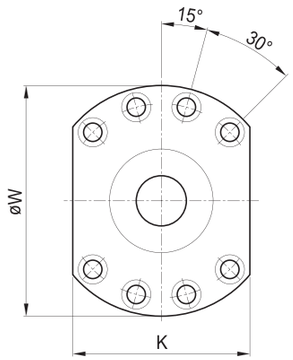
FF-DS(T)型支撑端支撑单元
FF-DS(T) Type Supported-End Support Unit



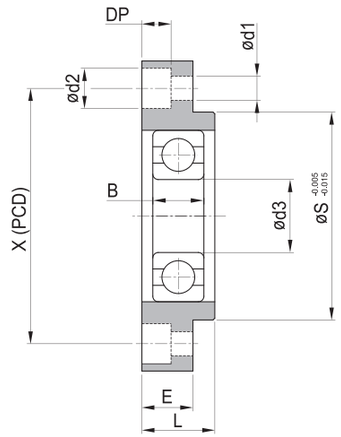
[FF 6DS~20DS, FF 25DT, FF 30DT]



[FF 25DS~30DS]



[FF 40DS]



(单位 Unit : mm)

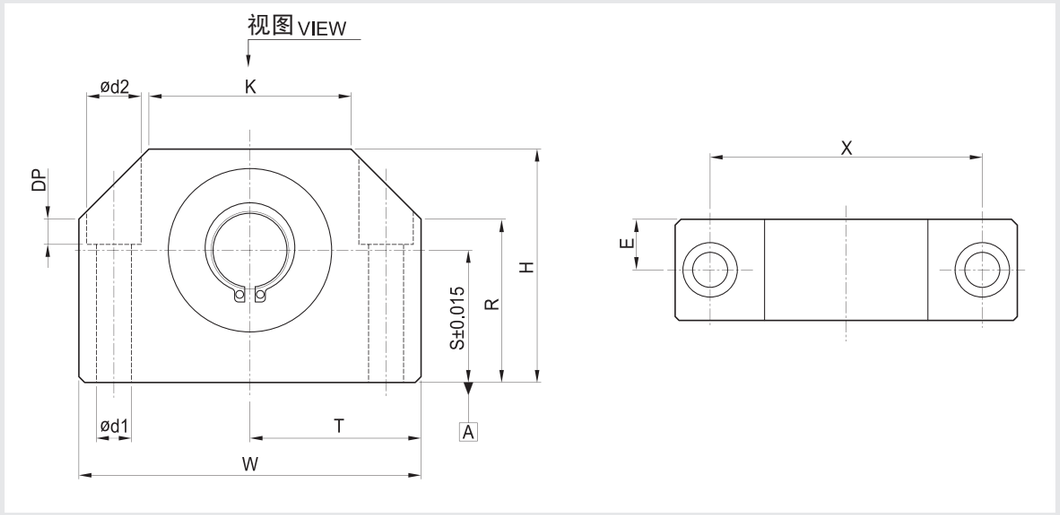
型号 Model No.	W	K	S	L	E	X (PCD)
FF 6DS	36	28	22	10	6	28
FF 8DS	36	28	22	10	6	28
FF 10DS	43	35	28	12	7	35
FF 12DS	52	42	34	15	7	42
FF 15DS	63	52	40	17	9	50
FF 17DS	77	61	50	20	11	62
FF 20DS	85	68	57	20	11	70
FF 25DS	122	92	80	30	15	100
FF 25DT	98	79	63	24	14	80
FF 30DS	138	106	90	32	15	116
FF 30DT	117	93	75	27	18	95
FF 40DS	176	128	120	36	18	150

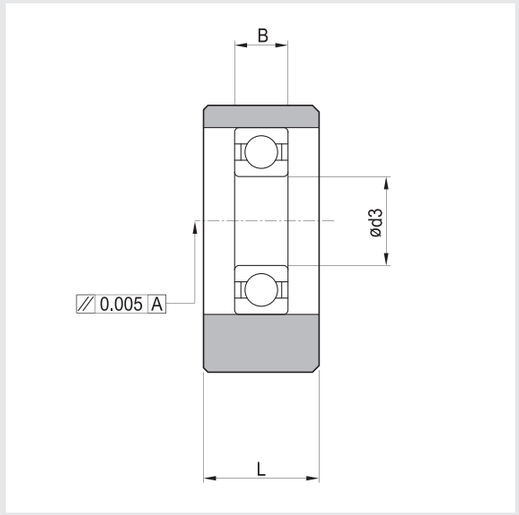
d1	d2	DP	B	d3	止推环 Snap ring	轴承型号 Bearing model No.
3.4	6.5	4	6	6	C6	606ZZ
3.4	6.5	4	6	6	C6	606ZZ
3.4	6.5	4	7	8	C8	608ZZ
4.5	8	4	8	10	C10	6000ZZ
5.5	9.5	6	9	15	C15	6002ZZ
6.6	11	10	12	17	C17	6203ZZ
6.6	11	6.5	14	20	C20	6204ZZ
11	17.5	11	15	25	C25	6205ZZ
9	14	8.5	15	25	C25	6205ZZ
11	17.5	11	16	30	C30	6206ZZ
11	17.5	11	16	30	C30	6206ZZ
14	20	13	18	40	C40	6208ZZ

支撑单元
Support Unit

支撑端支撑单元
Supported-End Support Unit

BF型支撑端支撑单元
BF Type Supported-End Support Unit





（单位 Unit : mm）

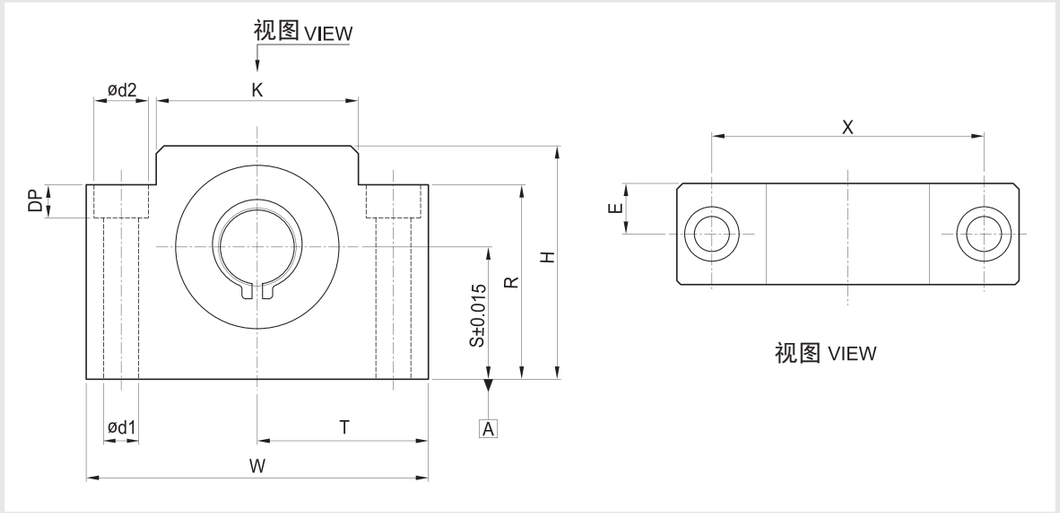
型号 Model No.	W	H	S	R	T	K	L	E	X
BF 8	52	32	17	18.5	26	25	20	10	38
BF 10	60	39	22	26	30	34	20	10	46
BF 12	60	43	25	30	30	34	20	10	46
BF 15	70	48	28	33	35	40	20	10	54
BF 17	86	64	39	46	43	50	23	11.5	68
BF 20	88	60	34	42	44	52	26	13	70
BF 25	106	80	48	59	53	64	30	15	85
BF 30	128	89	51	63	64	76	32	16	102
BF 40	160	110	60	80	80	100	37	18.5	130

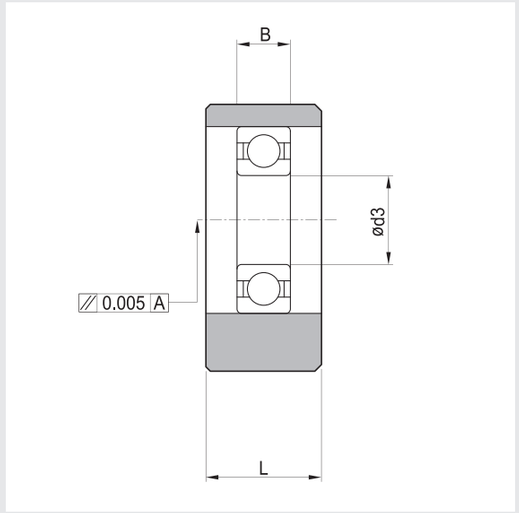
d1	d2	DP	B	d3	止推环 Snap ring	轴承型号 Bearing model No.
6.6	11	6.5	6	6	C6	606ZZ
6.6	11	6.5	7	8	C8	608ZZ
6.6	11	6.5	8	10	C10	6000ZZ
6.6	11	6.5	9	15	C15	6002ZZ
9	14	8.5	12	17	C17	6203ZZ
9	14	8.5	12	20	C20	6204ZZ
11	17.5	11	15	25	C25	6205ZZ
14	20	13	16	30	C30	6206ZZ
18	26	17.5	18	40	C40	6208ZZ

支撑单元
Support Unit

支撑端支撑单元
Supported-End Support Unit

BF-DS型支撑端支撑单元
BF-DS Type Supported-End Support Unit





（单位 Unit : mm）

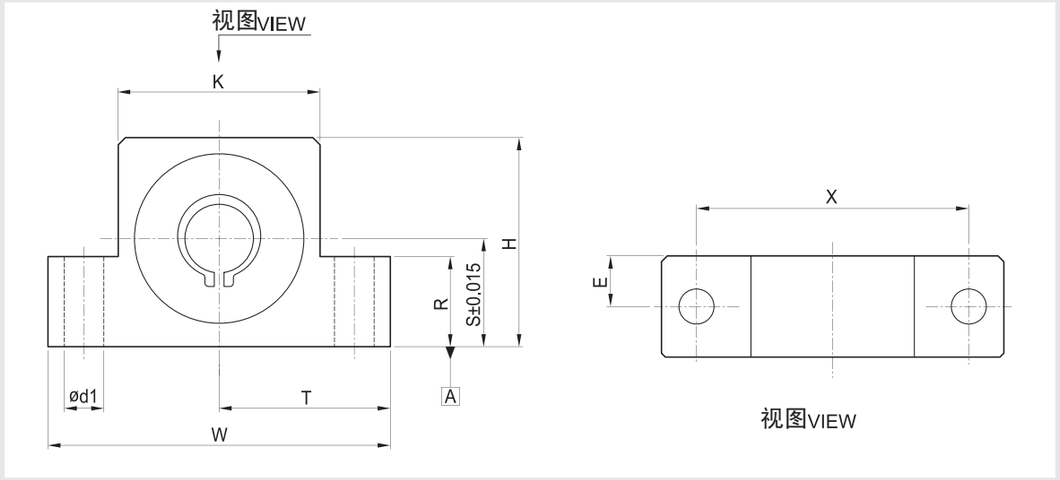
型号 Model No.	W	H	S	R	T	K	L	E	X
BF 10DS	60	39	22	32.5	30	34	20	10	46
BF 12DS	60	43	25	35	30	35	20	10	46
BF 15DS	70	48	28	38	35	40	20	10	54
BF 17DS	86	64	39	55	43	50	23	11.5	68
BF 20DS	88	60	34	50	44	52	26	13	70
BF 25DS	106	80	48	70	53	64	30	15	85
BF 30DS	128	89	51	78	64	76	32	16	102
BF 40DS	160	110	60	90	80	100	37	18.5	130

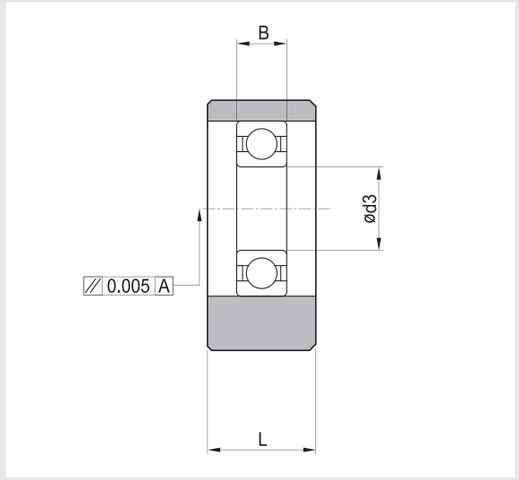
d1	d2	DP	B	d3	止推环 Snap ring	轴承型号 Bearing model No.
6.6	11	5	7	8	C8	608ZZ
6.6	11	6.5	8	10	C10	6000ZZ
6.6	11	6.5	9	15	C15	6002ZZ
9	14	8.5	12	17	C17	6203ZZ
9	14	8.5	12	20	C20	6204ZZ
11	17.5	11	15	25	C25	6205ZZ
14	20	13	16	30	C30	6206ZZ
18	26	17.5	18	40	C40	6208ZZ

支撑单元
Support Unit

支撑端支撑单元
Supported-End Support Unit

EF型支撑端支撑单元
EF Type Supported-End Support Unit





(单位 Unit : mm)

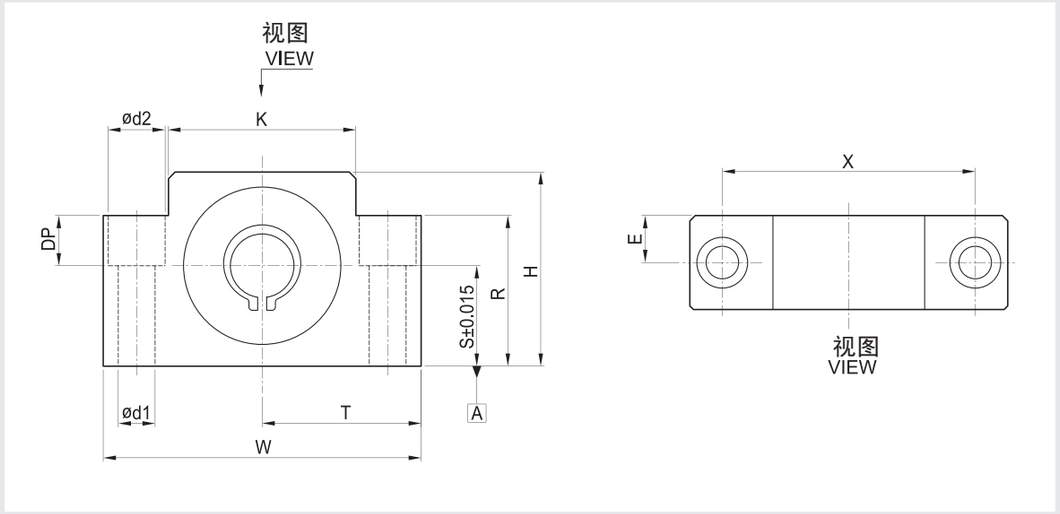
型号 Model No.	W	H	S	R	T	K	L	E	X
EF 6	42	25	13	20	21	18	12	6	30
EF 8	52	32	17	26	26	25	14	7	38
EF 10	70	43	25	24	35	36	20	10	52
EF 12	70	43	25	24	35	36	20	10	52
EF 15	80	49	30	25	40	41	20	10	60
EF 20	95	58	30	25	42.5	56	26	13	75
EF 25	105	68	35	25	52.5	66	30	15	85

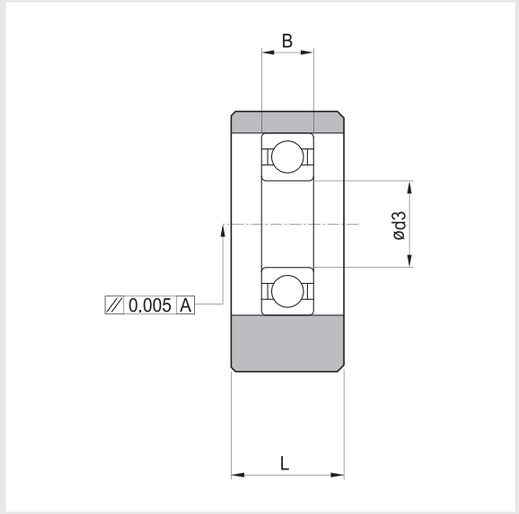
d1	d2	DP	B	d3	止推环 Snap ring	轴承型号 Bearing model No.
5.5	9.5	11	6	6	C6	606ZZ
6.6	11	12	6	6	C6	606ZZ
9	-	-	7	8	C8	608ZZ
9	-	-	8	10	C10	6000ZZ
9	-	-	9	15	C15	6002ZZ
11	-	-	14	20	C20	6204ZZ
11	-	-	15	25	C25	6205ZZ

支撑单元
Support Unit

支撑端支撑单元
Supported-End Support Unit

AF型支撑端支撑单元
AF Type Supported-End Support Unit





（单位 Unit : mm）

型号 Model No.	W	H	S	R	T	K	L	E	X
AF 10	70	43	25	35	35	36	20	10	52
AF 12	70	43	25	35	35	36	20	10	52
AF 15	60	49	30	40	40	41	20	10	80
AF 20	95	58	30	45	42.5	56	26	13	75

d1	d2	DP	B	d3	止推环 Snap ring	轴承型号 Bearing model No.
8.5	14	11	7	8	C8	608ZZ
8.5	14	11	8	10	C10	6000ZZ
11	17	15	9	15	C15	6002ZZ
11	17	15	14	20	C20	6204ZZ

螺纹端加工建议
Recommended Screw End Machining

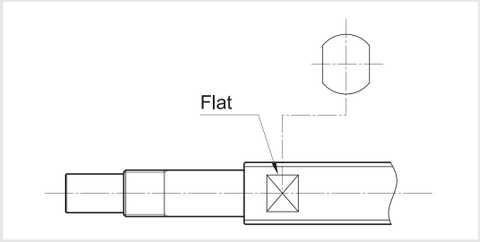
螺纹端加工注意事项
Precautions for Recommended Screw End Machining

[将锁紧螺母安装在固定端]
[Install the lock nut in the fixed-End]

在加工固定端时，应准备将锁紧螺母紧紧固定到轴承上。锁紧螺母的紧度可调节预负荷和间隙。
When machining the Fixed-End, plan for the lock nut fastened tightly against the bearings. The lock nut tightness adjusts the preload and clearance.

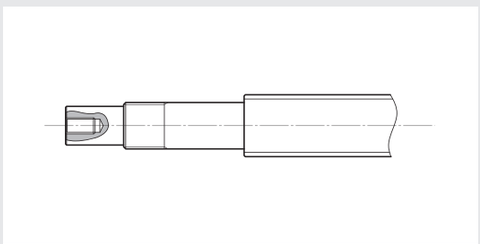
(1) 在螺杆轴上开槽
Making Groove on screw shaft

在螺杆轴上开槽，使用扳手固定螺母，确保其平稳移动。
Make groove on screw shaft and fix it with a spanner so that the nut travels smoothly.



(2) 开孔加工
Tap machining

在螺杆轴的一端钻一个螺纹孔。用扳手固定一个螺栓。
这主要用与短轴一起使用。
Machine a tapped hole on the end of screw.
Fasten a bolt and fix it with a wrench.
This is mainly used with the short shaft.



[端部加工以便手动运转]
[End Machining for manual transfer]

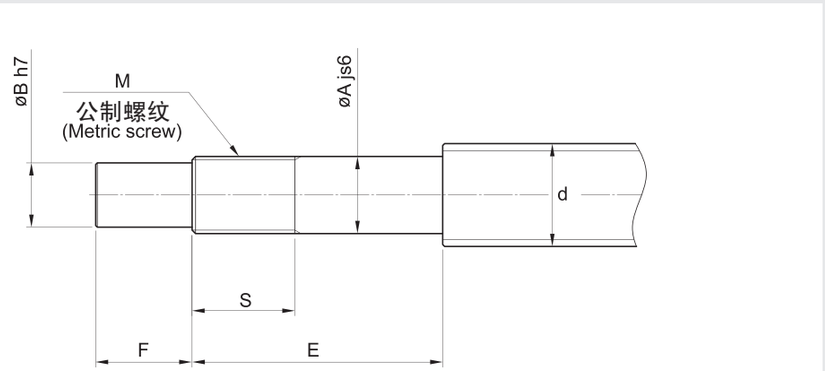
滚珠丝杠安装完毕后，有时需要在没有电机的情况下手动运转。在支撑端的六角或正方形侧加工以确保能放入扳手。
After installing the ball screw, sometimes it needs be manually operated without a motor. Machine hexangular or square side on the supported end to fit a wrench.

[固定动力传输部件]
[Fixing of power convey parts]

When fastening a gear on the screw shaft, machine a groove for a set screw or use a keyway for mounting the gear.
在螺杆轴上固定齿轮时，开一个槽以安装定位螺钉，或利用键槽安装齿轮。

螺纹端加工建议
Recommended Screw End Machining

固定端螺纹端加工建议（A型）
Fixed-End Recommended Screw End Machining (A Type)

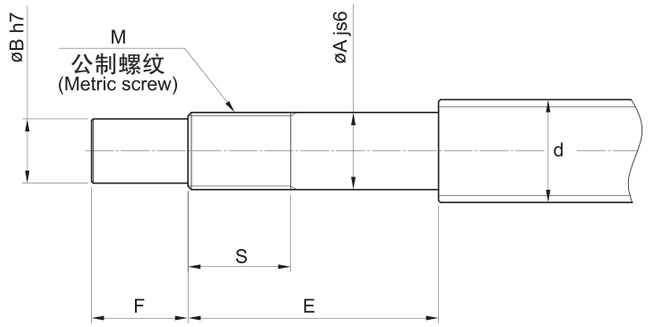


A1型螺纹端加工建议[适用于支撑单元：FK、BK]
A1 Type Recommended Screw End Machining [Applied Support to Units: FK, BK]

支撑单元 Support Unit		螺纹处轴外径 Screw Outer Diameter	轴承部分轴外径 Bearing Outer Diameter	B	E	F	公制螺纹 Meter Thread	
型号名称 Model Name	编号 No.	d	A				M x PICH	S
FK, BK	8	12	8	6	34	10	M8x0.75	10
	10	14~15	10	8	39	15	M10x1	12
	12	15~18	12	10	39	15	M12x1	12
	15	20~25	15	12	41	20	M15x1	12
BK	17	25	17	15	53	27	M17x1	14
FK, BK	20	28~32	20	17	53	27	M20x1	14
	25	32~36	25	20	65	36	M25x1.5	18
	30	40	30	25	72	42	M30x1.5	24
	40	50~55	40	35	98	70	M40x1.5	35

支撑单元
Support Unit

螺纹端加工建议
Recommended Screw End Machining



A2型螺纹端加工建议[适用于支撑单元：AK、EK]
A2 Type Recommended Screw End Machining [Applied to Support Units: AK, EK]

支撑单元 Support Unit		螺纹处轴外径 Screw Outer Diameter	轴承部分轴外径 Bearing Outer Diameter	B	E	F	公制螺纹 Meter Thread	
型号名称 Model Name	编号 No.	d	A				M x PICH	S
EK	6	8~10	6	4	30	8	M6x0.75	9
	8	12	8	6	35	9	M8x1	10
EK, AK	10	14~15	10	8	39	15	M10X1	12
	12	15~18	12	10	39	15	M12x1	12
	15	20~25	15	12	49	20	M15x1	13
	20	28~32	20	17	64	25	M20x1	17
EK	25	32~36	25	20	72	30	M25x1.5	18

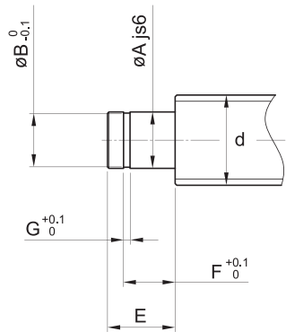
A3型螺纹端加工建议[适用于支撑单元：FK-DS、BK-DS]
A3 Type Recommended Screw End Machining [Applied to Support Units: FK-DS, BK-DS]

支撑单元 Support Unit		螺纹处轴外径 Screw Outer Diameter	轴承部分轴外径 Bearing Outer Diameter	B	E	F	公制螺纹 Meter Thread	
型号名称 Model Name	编号 No.	d	A				M x PICH	S
FK	6DS	8~10	6	4	30	8	M6x0.75	10
	8DS	12	8	6	32	9	M8x1	10
	10DS	14~15	10	8	36	15	M10X1	11
	12DS	15~18	12	10	36	15	M12x1	11
	15DS	20~25	15	12	49	20	M15x1	13
	17DS	25	17	15	53	23	M17x1	14
	20DS	28~32	20	17	64	25	M20x1	17
	25DS	32~36	25	20	65	30	M25x1.5	18
	30DS	40	30	25	69	38	M30x1.5	21
	40DS	50~55	40	35	98	70	M40x1.5	35
BK	10DS	14~15	10	8	39	15	M10X1	12
	12DS	15~18	12	10	39	15	M12x1	12
	15DS	20~25	15	12	41	20	M15x1	12
	17DS	25	17	15	53	23	M17x1	14
	20DS	28~32	20	17	53	25	M20x1	14
	25DS	32~36	25	20	65	30	M25x1.5	18
	30DS	40	30	25	72	38	M30x1.5	21
	40DS	50~55	40	35	98	50	M40x1.5	35

支撑单元
Support Unit

螺纹端加工建议
Recommended Screw End Machining

支撑端螺纹端加工建议(B型)
Supported-End Recommended Screw End Machining (B Type)



B1型支撑端螺纹端加工建议[适用于支撑单元：FF、BF]
B1 Type Supported-End Recommended Screw End Machining [Applied to Support Units: FF, BF]

支撑单元 Support Unit		螺纹处轴外径 Screw Outer Diameter	轴承部分轴外径 Bearing Outer Diameter	E	止推环用槽 Snap Ring Flute		
型号名称 Model Name	编号 No.	d	A		B	F	G
FF, BF	8	12	6	9	5.7	6.8	0.8
	10	14~15	8	11	7.6	7.9	0.9
	12	15~18	10	12	9.6	9.15	1.15
	15	20~25	15	12	14.3	10.15	1.15
BF	17	25	17	16	16.2	13.35	1.15
FF	20	28~32	20	16	19	15.35	1.35
BF	20	28~32	20	16	19	13.35	1.35
FF, BF	25	32~36	25	20	23.9	16.35	1.35
	30	40	30	20	28.6	17.75	1.75
	40	50~55	40	25	38	19.75	1.75

B2型支撑端螺纹端加工建议[适用于支撑单元：FF-DS、BF-DS]
B2 Type Supported-End Recommended Screw End Machining [Applied to Support Units: FF-DS, BF-DS]

支撑单元 Support Unit		螺纹处轴外径 Screw Outer Diameter	轴承部分轴外径 Bearing Outer Diameter	E	止推环用槽 Snap Ring Flute		
型号名称 Model Name	编号 No.	d	A		B	F	G
FF	6DS	8~10	6	9	5.7	6.8	0.8
	8DS	12	6	9	5.7	6.8	0.8
	10DS	14~15	8	10	7.6	7.9	0.9
	12DS	15~18	10	11	9.6	9.15	1.15
	15DS	20~25	15	13	14.3	10.15	1.15
	17DS	25	17	16	16.2	13.15	1.15
	20DS	28~32	20	19	19	15.35	1.35
	25DS	32~36	25	20	23.9	16.35	1.35
	30DS	40	30	21	28.6	17.75	1.75
	40DS	50~55	40	23	38	19.95	1.95
BF	10DS	14~15	8	10	7.6	7.9	0.9
	12DS	15~18	10	11	9.6	9.15	1.15
	15DS	20~25	15	13	14.3	10.15	1.15
	17DS	25	17	16	16.2	13.15	1.15
	20DS	28~32	20	16	19	13.35	1.35
	25DS	32~36	25	20	23.9	16.35	1.35
	30DS	40	30	21	28.6	17.75	1.75
	40DS	50~55	40	23	38	19.95	1.95

B3型支撑端螺纹端加工建议[适用于支撑单元：EF、AF]
B3 Type Supported-End Recommended Screw End Machining [Applied to Support Units: EF, AF]

支撑单元 Support Unit		螺纹处轴外径 Screw Outer Diameter	轴承部分轴外径 Bearing Outer Diameter	E	止推环用槽 Snap Ring Flute		
型号名称 Model Name	编号 No.	d	A		B	F	G
EF	6	8~10	6	9	5.7	6.8	0.8
	8	12	6	9	5.7	6.8	0.8
EF, AF	10	14~15	8	10	7.6	7.9	0.9
	12	15~18	10	11	9.6	9.15	1.15
	15	20~25	15	13	14.3	10.15	1.15
	20	28~32	20	19	19	15.35	1.35
EF	25	32~36	25	20	23.9	16.35	1.35

直线轴承
Linear Bushings

技术数据/亚洲型滚珠轴承/欧洲型滚珠轴承/
紧凑型滚珠轴承/选项

Technical Data / Asia type Ball Bushing / Europe type Ball Bushing /
Compact type Ball Bushing / Option

直线轴承
Linear Bushings

技术数据
Technical Data

SBC直线轴承系统
SBC Linear Bushing Systems

直线轴承系统由滚珠轴承与直线光轴组成，它能进行无限直线运动导向。轴承系统的容许额定载荷虽不如SBC异型导轨系统那样出色，但在需要精密直线引导的轻载荷应用条件下，它不愧是一种性能优异、成本低廉的替代解决方案。

Linear Bushing systems are a combination of a Ball Bushing (s) and LM shaft to perform infinite straight motion guiding. The permissible load rating of bushing systems are not as great as SBC profiled rail systems however they are a good, lower cost alternative where precise linear guidance is desired in light load applications.



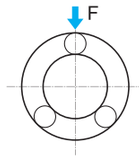
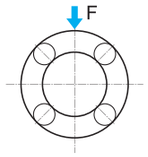
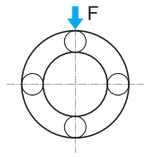
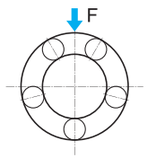
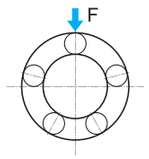
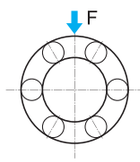
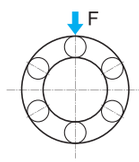
额定载荷
Load Rating

直线轴承的额定载荷取决于滚珠的位置和载荷方向。

The load rating of the linear bushing is dependent on the position of balls and relative to the load direction.

下表显示了与方向有关的额定载荷。

The table below shows the load rating relative to orietnation.

滚珠列数 **Rows of balls**	滚珠位置 **Ball position**	
	最大载荷 **Maximum Load**	最小载荷 **Minimum Load**
3 rows	-	 F = C
4 rows	 F = 1.41C	 F = C
5 rows	 F = 1.46C	 F = C
6 rows	 F = 1.26C	 F = C

[基本额定动载荷： C（N）]

[Basic dynamic load rating : C(N)]

基本额定动载荷是轴承在50km的额定行程寿命期内能承受的载荷。它的依据是，一组相同的轴承在相同条件下有90%能在额定行程寿命期内承受的载荷。

The basic dynamic load rating is the load that the bearing can sustain for a rated life of 50km. This is based on a group of identical bearings under identical conditions with 90% lasting past the rated life.

[基本额定静载荷： Co（N）]

[Basic static load rating : Co(N)]

基本额定静载荷是滚动面出现的永久变形等于滚珠直径的1/10000之前，轴承能承受的最大载荷。

The basic static load rating the maximum load that the bearing can sustain before the raceway sustains permanent deformation of equal to 1/10,000 the diameter of the ball.

静安全系数:fs
Static Safety Factors : fs

下表显示了建议的静安全系数，它是占空比和负载条件的函数。这些安全系数也是正确选择尺寸的重要依据。

The suggested Static Safety Factors are shown in the table below and are functions of the duty cycle and the loading conditions. These are guidelines for proper size selection .

$$f_S = \frac{C_O}{P}$$ （径向载荷）(Radial Load)

- C_O ：基本额定动载荷 Basic dynamic load rating
- P ：计算载荷 Calculated load

（静安全系数表）
(Table, Static Safety Factor)

运行条件 Operating Condition	负载条件 Load Conditions	fs
偶尔运行 Occasional operating	小冲击 Small impact	1.0 ~ 1.3
	冲击或扭曲载荷 Impact or Twisting load	2.0 ~ 3.0
常规运行 Ordinary operating	正常载荷 Normal load	1.0 ~ 1.5
	冲击或扭曲载荷 Impact or Twisting load	2.5 ~ 7.0

计算施加载荷
Calculating the Applied Loads

在直线轴承上施加的载荷因方向不同而变化。在选择直线轴承的类型以前，必须仔细考虑这些条件。计算载荷时请参考以下实例。

Loads exerted on a linear bushing vary according to direction. It is important to consider the conditions before selecting the type of linear bushing. Refer to example when calculating the loads.

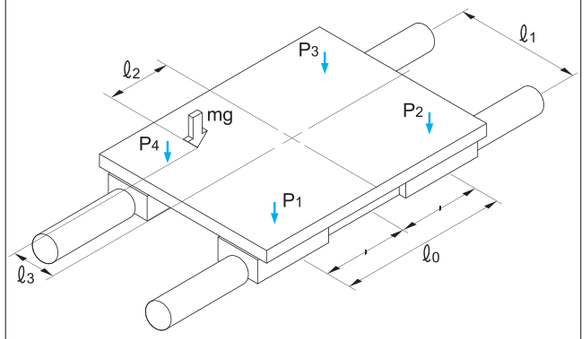
[施加载荷]
[Applied Load]

- m (kg) ：施加载荷 Applied Load
- ℓ_n (mm) ：行程 Distance
- P_n (N) ：径向载荷 Radial Load
- P_{nT} (N) ：横向载荷 Lateral Load
- g (m/s^2) ：重力加速度 Gravitational Acceleration (=9.8m/s^2)
- V(m/s) ：速度 Velocity
- an(m/s^2) ：加速度与减速度 Acceleration and deceleration

直线轴承
Linear Bushings

技术数据
Technical Data

条件1 Condition 1 水平轴 Horizontal axis



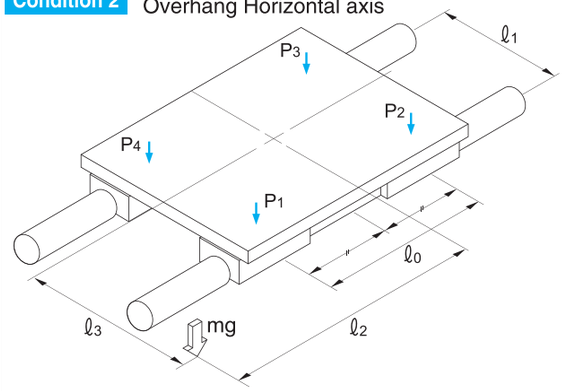
$$P_1 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_2 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell}$$

$$P_3 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_4 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

条件2 Condition 2 悬伸水平轴 Overhang Horizontal axis



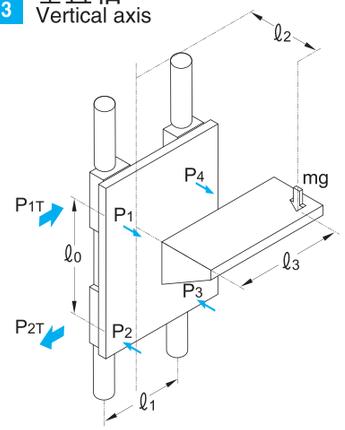
$$P_1 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_2 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} + \frac{mg\cdot\ell_3}{2\cdot\ell}$$

$$P_3 = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_4 = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0} - \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

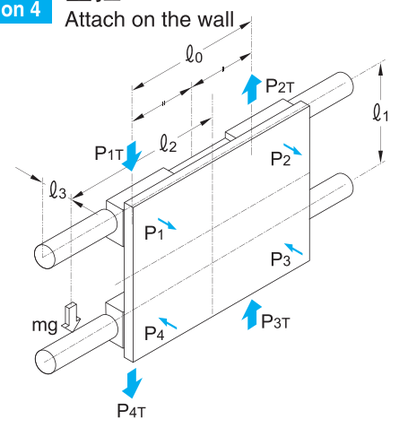
条件3 Condition 3 垂直轴 Vertical axis



$$P_{1}\sim P_{4} = \frac{mg\cdot\ell_2}{2\cdot\ell_0}$$

$$P_{1T}\sim P_{4T} = \frac{mg\cdot\ell_3}{2\cdot\ell_0}$$

条件4 Condition 4 壁挂 Attach on the wall



$$P_{1}\sim P_{4} = \frac{mg\cdot\ell_3}{2\cdot\ell_1}$$

$$P_{1T}\sim P_{4T} = \frac{mg}{4} + \frac{mg\cdot\ell_2}{2\cdot\ell_0}$$

$$P_{2T}\sim P_{3T} = \frac{mg}{4} - \frac{mg\cdot\ell_2}{2\cdot\ell_0}$$

直线轴承
Linear Bushings

技术数据
Technical Data

平均载荷
Mean Load

在直线轴承上施加的载荷因各种条件而变化。要计算直线轴承的载荷，必须考虑所有载荷条件。

Loads acting on the Linear bushing vary according to various conditions. All load conditions must be taken into consideration in order to calculate the linear bushing.

[计算平均载荷]
[Calculating the mean load]

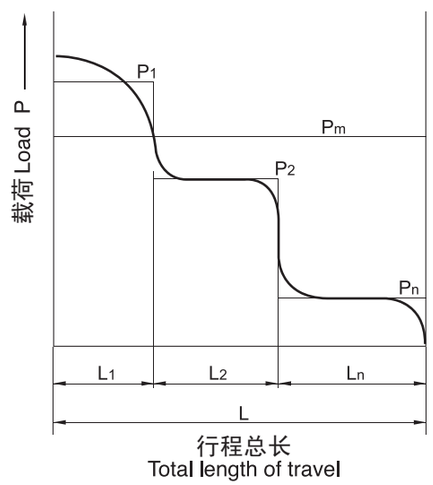
P_m :	平均载荷 Mean load	(N) (N)
P_n :	变化载荷 Varying load	(N) (N)
L :	行程总长 Total length of travel	(mm) (mm)
L_n :	承载Pn的行程长度 Length of travel carrying P_n	(mm) (mm)

$$P_m = \sqrt[3]{\frac{1}{L} \cdot \sum_{m=1}^{n} (P_n^3 \cdot L_n)}$$

1) 阶梯式变化载荷
Step loads

$$P_m = \sqrt[3]{\frac{1}{L}(P_1^3 \cdot L_1 + P_2^3 \cdot L_2 \cdots\cdots + P_n^3 \cdot L_n)} \cdots\cdots (1)$$

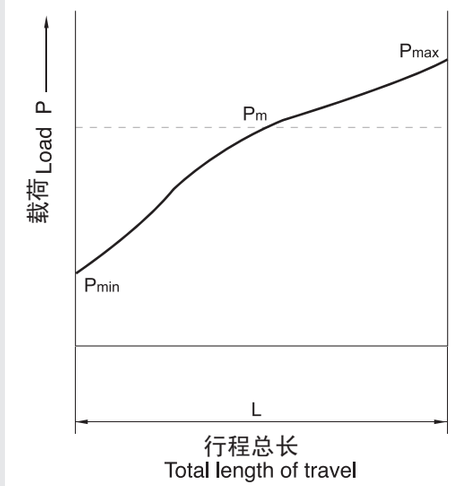
P_m :	平均载荷 Mean load	(N) (N)
P_n :	变化载荷 Varying load	(N) (N)
L :	行程总长 Total length of travel	(mm) (mm)
L_n :	承载Pn的行程长度 Length of travel carrying P_n	(mm) (mm)



2) 单调变化载荷
Loads that vary linearly

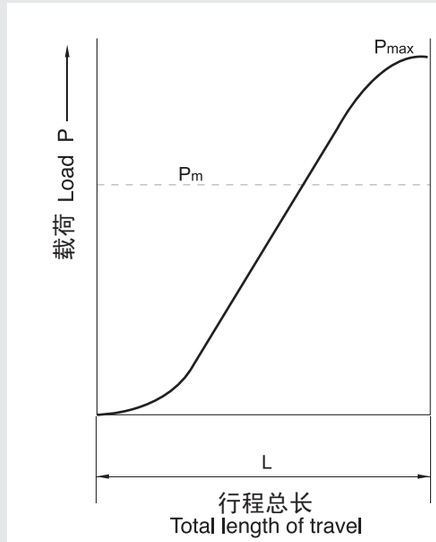
$$P_m \fallingdotseq \frac{1}{3}(P_{min} + 2 \cdot P_{max}) \cdots\cdots (2)$$

P^{min} :	最小载荷 Minimum load	(N) (N)
P_{max} :	最大载荷 Maximum load	(N) (N)

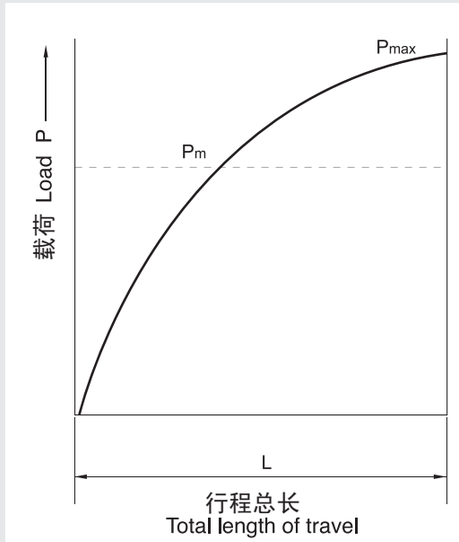


3) 正弦式变化载荷
Loads varying sinusoidally

a) $P_m \fallingdotseq 0.65_{max}$ ····· (3)



b) $P_m \fallingdotseq 0.75_{max}$ ····· (4)



直线轴承
Linear Bushings

技术数据
Technical Data

额定行程寿命
Nominal Life

直线轴承的额定行程寿命的计算公式如下所示：

The equation of nominal life for linear Ball bush is shown as below.

[计算额定行程寿命]

[Calculating the Nominal Life]

$$L = \left(\frac{f_H \cdot f_T \cdot f_C}{f_W} \cdot \frac{C}{P_C} \right)^3 X\ 50$$

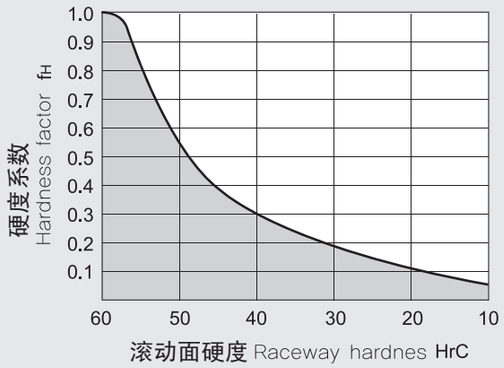
- L (km) : 额定行程寿命 Nominal life
- P_C(N) : 计算载荷 Calculated load
- C (N) : 基本额定动载荷 Basic dynamic load rating
- f_H : 硬度系数 Hardness factor
- f_T : 温度系数 Temperature factor
- f_C : 接触系数 Contact factor
- f_W : 载荷系数 Load factor

硬度系数 (f_H)
Hardness factor (f_H)

度应该在 HrC58~62之间。
如果硬度小于该范围，基本额定载荷会如右表所示减小。

The hardness should be between HrC58~62. If the hardness is lower than this range, the basic rated load decreases per the table below.

※ 当硬度足够时，通常fH=1.0
When the hardness is enough, normally fH=1.0



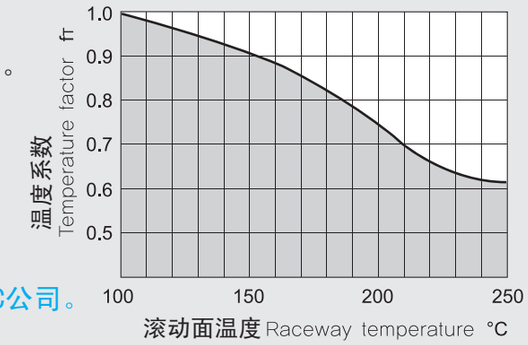
温度系数 (f_T)
Temperature factor (f_T)

当环境温度超过100° C时，容许载荷会根据右表内的温度修正系数（fT）减少。

For environments in excess of 100°C the permissible load is reduced by using the Temperature correction factor (f_T) from the adjacent table.

※ 低于80° C：fT=1.0
Under 80°C, f_T=1.0

※ 如果环境温度超过80° C，请联系SBC公司。
Contact SBC, if the environment temperature exceeds 80°C



接触系数 (f_C)
Contact factor (f_C)

当使用的直线轴承彼此紧密接触时，需要乘以接触系数

When using Linear bushing in close contact with each other, multiply contact factor.

紧密接触的滑块数量 Number of blocks in close contact	接触系数fC Contact factor fc
2	0.81
3	0.72
4	0.66
5	0.61
6个或更多 6 or more	0.6
正常条件 Normal condtion	1.0

载荷系数 (f_W)
Load factor (f_W)

往复运动的设备通常容易受到振动和冲击的影响。使用右表中的系数计算由系统的速度变化产生的冲击影响。

Generally reciprocating machines are inclined to involve vibrations and impact. Use the adjacent to factor in effect of vibration Introduced by system speed.

振动与冲击 Vibration and Impact	速度 (V) Velocity (V)	载荷系数 Load factor fw
极轻 Very slight	极慢 Very low V≦0.25m/s	1 ~ 1.2
轻 Slight	慢 Low 0.25＜V≦1.0m/s	1.2 ~ 1.5
适中 Moderate	中等Medium 1.0＜V≦2.0m/s	1.5 ~ 2.0
强 Strong	快 High V＜2.0m/s	2.0 ~ 3.5

计算使用寿命期
Calculating the Service Life time

计算出额定行程寿命，并且行程和每分钟的循环次数已知时，可通过下列公式计算使用寿命期。

When the nominal travel life has been calculated and the stroke and the number of cycles per minute are known, the service life (h) can be calculated using the equation below.

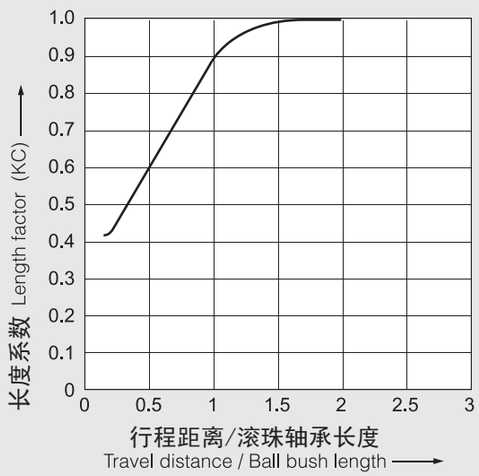
- L_h (h) : 使用寿命期 Service life time
- L (km) : 额定行程寿命 Nominal life
- ℓ_s (mm) : 行程长度 Stroke length
- n1 (min^{-1}) : 每分钟的往复运动次数 Number of reciprocations per minute

$$L_h = \frac{L \times 10^6}{2 \times \ell_s \times n_1 \times 60}$$

[短行程]
[Short Distance]

在短行程应用中，也就是当轴承的行程小于1 x 轴承长度（上述条件下）时，基本动载荷与长度系数成比例（Kc）。

For short stroke applications, where the Bushing travels less than 1 x the bushing length Under above condition, the basic dynamic load Is proportionate to length factor (Kc)

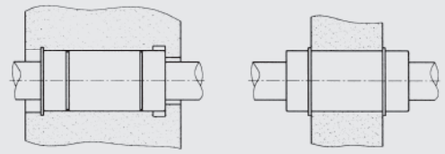


安装直线轴承
Installing the Linear Bushing

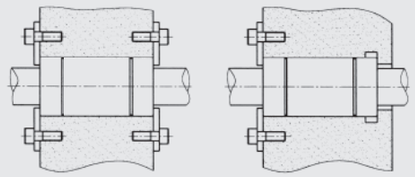
[方法：圆柱形直线轴承]
[Method: Cylindrical linear bushing]

采用止推环和端板安装
Snap ring and end plate method of installation

(1) 止推环Snap Ring

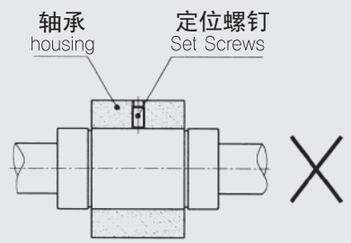


(2) 端板 End Plate



(3) 注意事项 Precautions

- 避免使用过盈配合力，这可能损坏轴承而且不安全。
  Avoid using force interference fit as is creates risk to the bushing and isn't safe
- 禁止使用定位螺钉。它会导致轴承变形。
  Set Screws Not allowed. It will cause the housing to be deformed.

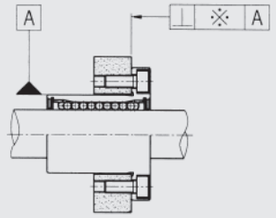


直线轴承
Linear Bushings

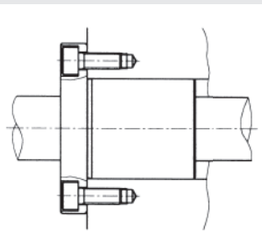
技术数据
Technical Data

[方法：法兰型]
[Method : Flanged Type]

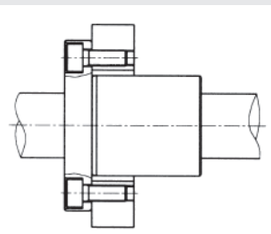
法兰型直线轴承需要垂直表面以减少轴承轴承损坏的风险。
Flange type linear bushing require perpendicular surfaces to reduce risk of damaging bushing housing.



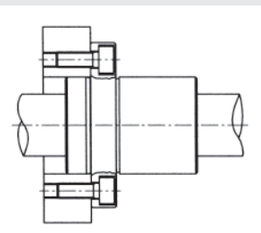
(1) 法兰式与OD安装
Flange and OD mounting



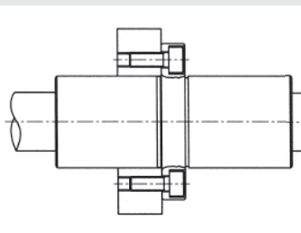
(2) 法兰式安装
Flange mounting only



(3) 导引端法兰安装
Mounted Pilot End type



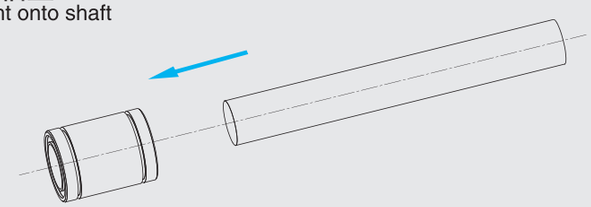
(4) 双中心法兰式安装
Mounted Center Flange Dual type



注意事项
Precautions

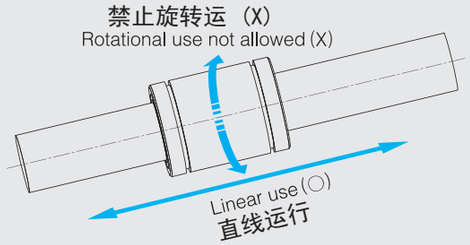
❶ 插入轴
Inserting the Shaft

将轴承直接插到轴上
Insert bushing straight onto shaft



❷直线轴承不能用于旋转运行
Linear Bushings are not intended for rotational use

直线轴承必须使用两个轴以防止旋转
Linear bushings must utilize two shafts to prevent rotation.



❸在运行过程中，轴不能脱离轴承
When in operation the shaft may not exit the housing

避免可导致轴脱离轴承的情况。使轴长超过行程长或使用限位器限制行程。
Avoid conditions that may cause shaft to exit the linear bushing. Make the length of shaft longer than stroke or restrict travel with a hard stop.

直线轴承
Linear Bushings

技术数据
Technical Data

润滑
Lubrication

用户可使用润滑脂或润滑油对直线轴承进行润滑以确保正常运行。
The linear bushing is designed to include grease or oil as a lubricant for its operation.

[润滑脂润滑]
[Grease Lubrication]

❶ 润滑前先清洁轴承
Clean bushing before Grease lubrication

使用润滑脂润滑前，先清洁轴套以去除防锈油。润滑脂与防锈油混合会对润滑脂产生不利影响。
Before lubricating with grease clean the bushing to remove the anti-rust preservative. Mixing grease and anti-rust preservative may cause adverse effects on the grease.

❷ 润滑方法
Grease lubrication Method

两侧密封（UU） **Seal on Both sides(UU)**	直接在滚珠列上进行润滑 Direct lubricate on rows of balls
无密封 **Without Seal**	在滚珠列/轴上进行润滑 Lubricate on rows of balls / Lubricate on the Shaft

❸推荐润滑脂
Recommended Grease

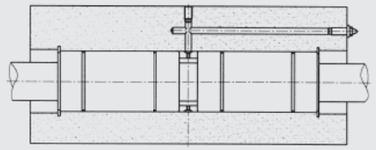
2号锂皂基润滑脂
Lithium-soap group grease No. 2.

[润滑油润滑]
[Oil Lubrication]

用润滑油进行润滑时，无需去除防锈油。润滑油应达到ISO粘度等级VG15~100。
When using oil lubrication it is not required to remove anti-rust oil. We recommend Oil that meets the requirement of ISO viscosity grade VG15~100

❶ 润滑油润滑
Oil lubrication

对直线轴承进行润滑时，可将润滑油滴到轴上或通过轴承上的注油孔注入润滑油，如图1所示。对于密封的轴承，必须使润滑油经过密封，或者必须先取下密封，使润滑油进入轴承内。
When oiling the linear bushing, drip oil on the shaft or fill it from the grease hole on the housing as shown fig1. For sealed bushings the oil must be forced past the seal or the seal must be removed to allow oil to enter the bushing.



❷ 推荐润滑油
Recommended oil

透平油、机油、主轴油
Turbine oil, machine oil, spindle oil.

温度 **Temperature**	粘度 **Viscosity**
-30°C ~ 50°C	VG 15 ~46
-50°C ~ 80°C	VG 15 ~100

表面处理
Surface Treatment

可提供镀镍处理。
Nickel Plating is available.

请联系SBC公司了解详情。
Please contact SBC.

亚洲型滚珠轴承
Asia type Ball Bushing

公制尺寸
Metric dimension
在亚洲各国广泛应用
Widely used in asian countries
合成树脂保持架
Synthetic resin retainer
多种尺寸和型号
Variety sizes and models

亚洲型滚珠轴承是在亚洲各国广泛应用的系列公制尺寸轴承。
Asia type ball bushing is a metric dimension series widely used in asian countries.

标准型：现货 Standard type : Stock available



SB　SB-AJ　SB-OP　SB-L

法兰型：现货 Flange type : Stock available



SBF　SBK　SBH　SBF-L　SBK-L　SBH-L

法兰型：订单生产 Flange type : Order made



SBF-A　SBK-A　SBH-A　SBF-LA　SBK-LA　SBH-LA

法兰型：订单生产 Flange type : Order made



SBFC　SBKC　SBHC

滚珠轴承：现货 Ball bush housing : Stock available

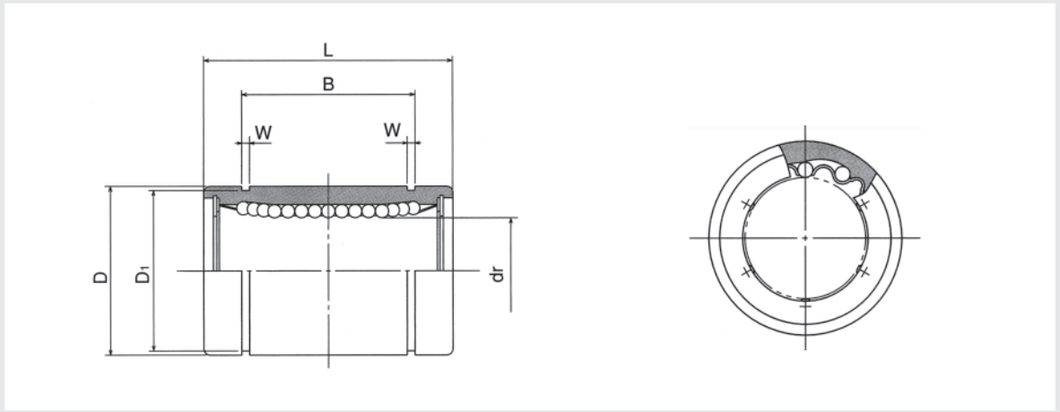


SC　SC-L

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SB标准型
SB standard type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		B	
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance
SB4	4	4	0 -0.008	8	0 -0.009	12	0 -0.02	-	-
SB5	4	5		10		15		10.2	0 -0.2
SB6	4	6	0 -0.009	12	0 -0.011	19	0 -0.2	13.5	
SB8S	4	8		15		17		11.5	
SB8	4	8		15		24		17.5	
SB10	4	10		19	0 -0.013	29		22	
SB12	4	12		21		30		23	
SB13	4	13		23		32		23	
SB16	5	16		28		37		26.5	
SB20	5	20	0 -0.010	32	0 -0.016	42		30.5	
SB25	6	25		40		59	0 -0.3	41	0 -0.3
SB30	6	30		45		64		44.5	
SB35	6	35	0 -0.012	52	0 -0.019	70		49.5	
SB40	6	40		60		80		60.5	
SB50	6	50	0 -0.015	80	0 -0.022	100		74	
SB60	6	60		90		110		85	

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M :质量
Mass

订购实例
Ordering example

SB 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），
UU（两侧密封）
[3] Seal : No symbol(Without seal),
UU(Seals on bothside)

表面处理：无符号（标准），
NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available
- 标准型 Standard type

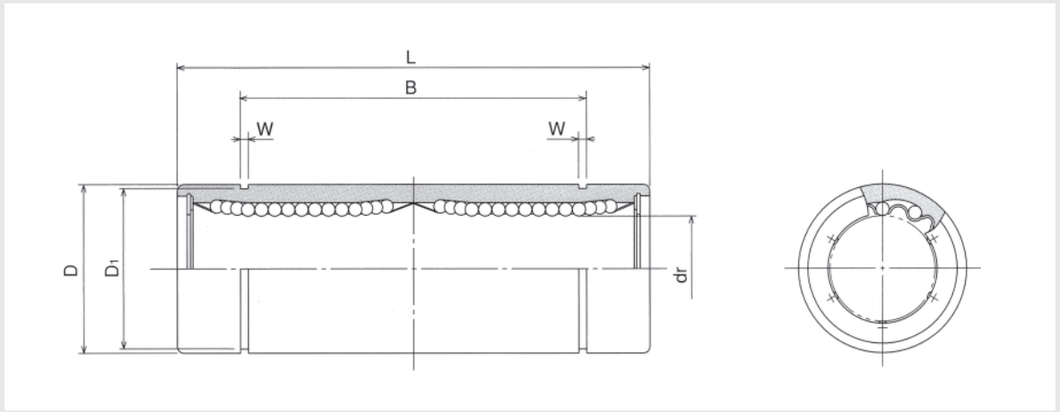
（单位Unit : mm）

W	D1	E	RC	C [N]	Co [N]	M [g]
-	-	0.008	-0.003	88	127	1.4
1.1	9.6	0.008	-0.003	167	206	4
1.1	11.5	0.012	-0.005	200	260	8
1.1	14.3	0.012	-0.005	170	220	11
1.1	14.3	0.012	-0.005	260	400	16
1.3	18	0.012	-0.005	370	540	30
1.3	20	0.012	-0.005	410	590	31.5
1.3	22	0.012	-0.007	500	770	43
1.6	27	0.012	-0.007	770	1170	69
1.6	30.5	0.015	-0.009	860	1370	87
1.85	38	0.015	-0.009	980	1560	220
1.85	43	0.015	-0.009	1560	2740	250
2.1	49	0.020	-0.013	1660	3130	390
2.1	57	0.020	-0.013	2150	4010	585
2.6	76.5	0.020	-0.013	3820	7930	1580
3.15	86.5	0.025	-0.016	4700	9990	2000

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SB–L标准型
SB-L standard type



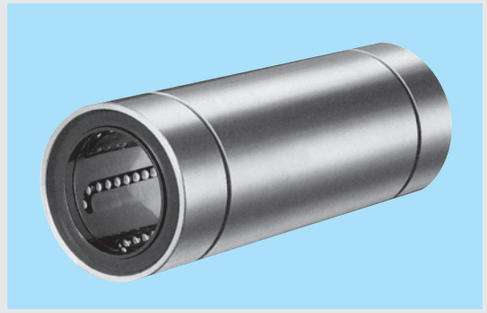
订购实例
Ordering example

SB 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），
UU（两侧密封）
[3] Seal : No symbol(Without seal),
UU(Seals on bothside)

表面处理：无符号（标准），
NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

（单位Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	B	容许公差 Permissible tolerance
SB6L	4	6	0 -0.010	12	0 -0.013	35	0 -0.3	27	0 -0.3
SB8L	4	8		15		45		35	
SB10L	4	10		19	0 -0.016	55		44	
SB12L	4	12		21		57		46	
SB13L	4	13		23		61		46	
SB16L	5	16		28		70		53	
SB20L	5	20	0 -0.012	32	0 -0.019	80		61	
SB25L	6	25		40		112	0 -0.4	82	0 -0.4
SB30L	6	30		45		123		89	
SB35L	6	35	0 -0.015	52	0 -0.022	135		99	
SB40L	6	40		60		154		121	
SB50L	6	50	0 -0.020	80		192		148	
SB60L	6	60		90	0 -0.025	211		170	

W	D1	E	RC	C [N]	Co [N]	M [g]
1.1	11.5	0.015	-0.005	323	530	16
1.1	14.3	0.015	-0.005	431	784	31
1.3	18	0.015	-0.005	588	1100	62
1.3	20	0.015	-0.005	657	1200	80
1.3	22	0.015	-0.007	813	1570	90
1.6	27	0.015	-0.007	1230	2350	145
1.6	30.5	0.020	-0.009	1400	2750	180
1.85	38	0.020	-0.009	1560	3140	440
1.85	43	0.020	-0.009	2490	5490	580
2.1	49	0.025	-0.013	2650	6270	795
2.1	57	0.025	-0.013	3430	8040	1170
2.6	76.5	0.025	-0.013	6080	15900	3100
3.15	86.5	0.025	-0.016	7650	20000	3500

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

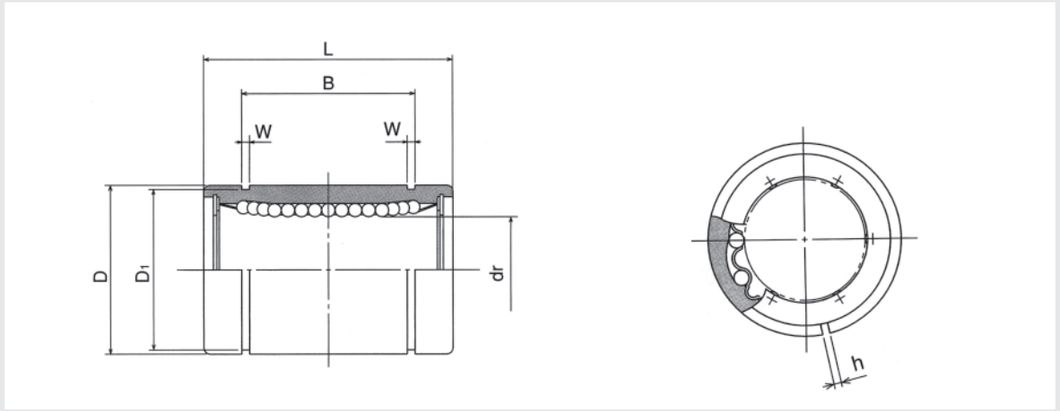
❹ Co 基本额定静载荷
Basic static load rating

❺ M :质量
Mass

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SB-AJ间隙可调型
SB-AJ clearance adjustable type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		B	
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance
SB6-AJ	4	6	0 -0.009	12	0 -0.011	19	0 -0.2	13.5	0 -0.2
SB8S-AJ	4	8		15		17		11.5	
SB8-AJ	4	8		15		24		17.5	
SB10-AJ	4	10		19	0 -0.013	29		22	
SB12-AJ	4	12		21		30		23	
SB13-AJ	4	13		23		32		23	
SB16-AJ	5	16		28		37		26.5	
SB20-AJ	5	20	0 -0.010	32	0 -0.016	42		30.5	
SB25-AJ	6	25		40		59	0 -0.3	41	0 -0.3
SB30-AJ	6	30		45		64		44.5	
SB35-AJ	6	35	0 -0.012	52	0 -0.019	70		49.5	
SB40-AJ	6	40		60		80		60.5	
SB50-AJ	6	50	0 -0.015	80	0 -0.022	100		74	
SB60-AJ	6	60		90		110		85	

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M :质量
Mass

订购实例
Ordering example

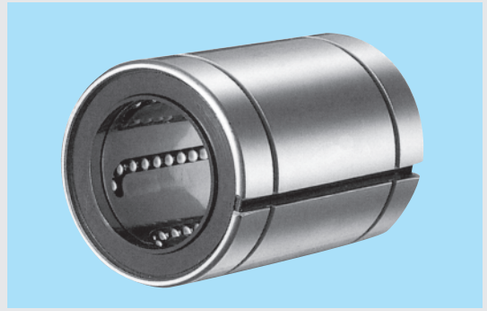
SB 25 UU – AJ – NM
[1] [2] [3] [3]

[1] 型号
Model number

[3] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] AJ：间隙可调
AJ : Clearance adjustable

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



•公制尺寸（亚洲型）Metric dimension (Asia type)
•现货 Stock available

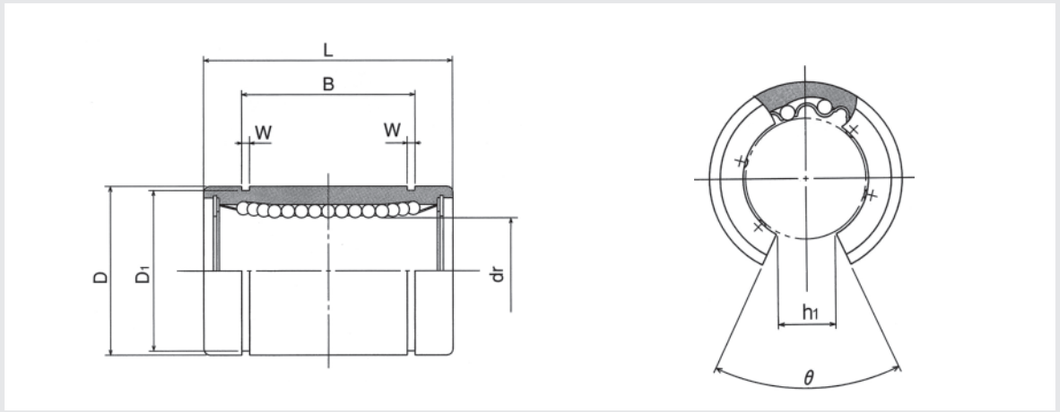
（单位Unit : mm）

W	D1	h	E	RC	C [N]	Co [N]	M [g]
1.1	11.5	1	0.012	-0.005	200	260	8
1.1	14.3	1	0.012	-0.005	170	220	11
1.1	14.3	1	0.012	-0.005	260	400	16
1.3	18	1	0.012	-0.005	370	540	30
1.3	20	1.5	0.012	-0.005	410	590	31.5
1.3	22	1.5	0.012	-0.007	500	770	43
1.6	27	1.5	0.012	-0.007	770	1170	69
1.6	30.5	1.5	0.015	-0.009	860	1370	87
1.85	38	2	0.015	-0.009	980	1560	220
1.85	43	2.5	0.015	-0.009	1560	2740	250
2.1	49	2.5	0.020	-0.013	1660	3130	390
2.1	57	3	0.020	-0.013	2150	4010	585
2.6	76.5	3	0.020	-0.013	3820	7930	1580
3.15	86.5	3	0.025	-0.016	4700	9990	2000

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SB-OP开放型
SB-OP open type



订购实例
Ordering example

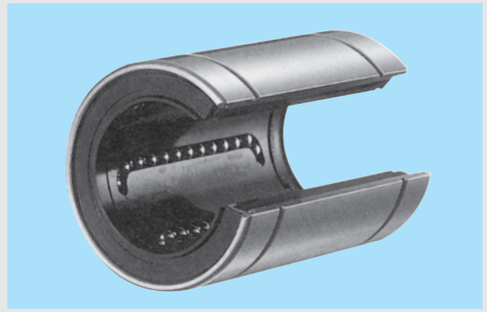
SB 25 UU – OP – NM
[1] [2] [3] [4]

[1] 型号
Model number

[3] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] OP： 开放型
OP : Open type

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	B	容许公差 Permissible tolerance
SB12-OP	3	12	0 -0.009	21	0 -0.013	30	0 -0.2	23	0 -0.2
SB13-OP	3	13		23		32		23	
SB16-OP	4	16		28		37		26.5	
SB20-OP	4	20	0 -0.010	32	0 -0.016	42		30.5	
SB25-OP	5	25		40		59	0 -0.3	41	0 -0.3
SB30-OP	5	30		45		64		44.5	
SB35-OP	5	35	0 -0.012	52	0 -0.019	70		49.5	
SB40-OP	5	40		60		80		60.5	
SB50-OP	5	50	0 -0.015	80	0 -0.022	100		74	
SB60-OP	5	60		90		110		85	

（单位Unit : mm）

W	D1	h1	θ	E	RC	C [N]	Co [N]	M [g]
1.3	20	8	80	0.012	-0.005	410	590	31.5
1.3	22	9	80	0.012	-0.007	500	770	43
1.6	27	11	80	0.012	-0.007	770	1170	69
1.6	30.5	11	60	0.015	-0.009	860	1370	87
1.85	38	12	50	0.015	-0.009	980	1560	220
1.85	43	15	50	0.015	-0.009	1560	2740	250
2.1	49	17	50	0.020	-0.013	1660	3130	390
2.1	57	20	50	0.020	-0.013	2150	4010	585
2.6	76.5	25	50	0.020	-0.013	3820	7930	1580
3.15	86.5	30	50	0.025	-0.016	4700	9990	2000

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

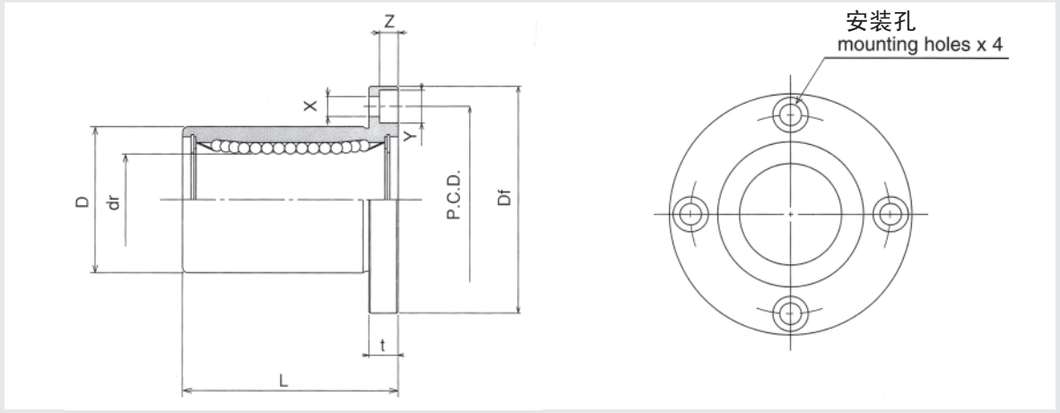
❹ Co 基本额定静载荷
Basic static load rating

❺ M :质量
Mass

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBF 法兰型
SBF Flange type



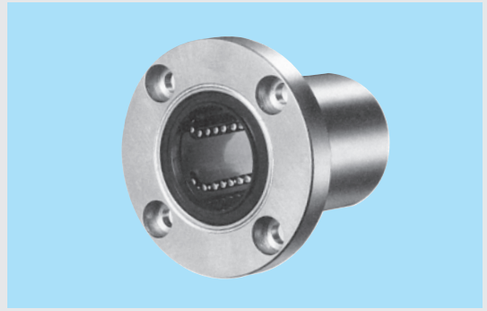
订购实例
Ordering example

SBF 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

（单位Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	Df	t
SBF6	4	6	0 -0.009	12	0 -0.013	19	±0.3	28	5
SBF8S	4	8		15		17		32	5
SBF8	4	8		15		24		32	5
SBF10	4	10		19	0 -0.016	29		40	6
SBF12	4	12		21		30		42	6
SBF13	4	13		23		32		43	6
SBF16	5	16		28		37		48	6
SBF20	5	20	0 -0.010	32	0 -0.019	42		54	8
SBF25	6	25		40		59		62	8
SBF30	6	30		45		64		74	10
SBF35	6	35	0 -0.012	52	0 -0.022	70		82	10
SBF40	6	40		60		80		96	13
SBF50	6	50		80		100		116	13
SBF60	6	60	0 -0.015	90	0 -0.025	110		134	18

PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
20	3.5	6	3.1	0.012	0.012	206	265	24
24	3.5	6	3.1	0.012	0.012	176	216	32
24	3.5	6	3.1	0.012	0.012	274	392	37
29	4.5	7.5	4.1	0.012	0.012	372	549	72
32	4.5	7.5	4.1	0.012	0.012	510	784	76
33	4.5	7.5	4.1	0.012	0.012	510	784	88
38	4.5	7.5	4.1	0.012	0.012	774	1180	120
43	5.5	9	5.1	0.015	0.015	882	1370	180
51	5.5	9	5.1	0.015	0.015	980	1570	340
60	6.6	11	6.1	0.015	0.015	1570	2740	470
67	6.6	11	6.1	0.020	0.020	1670	3140	650
78	9	14	8.1	0.020	0.020	2160	4020	1060
98	9	14	8.1	0.020	0.020	3820	7940	2200
112	11	17	11.1	0.025	0.025	4700	10000	3000

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

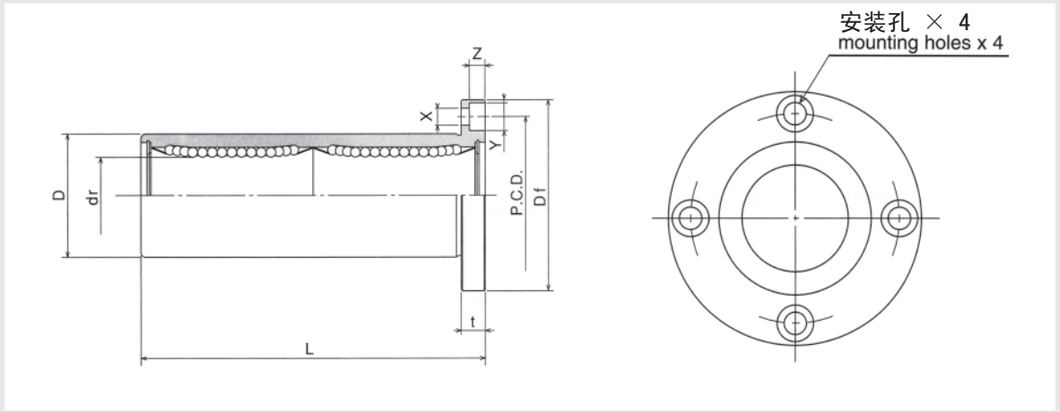
❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBF-L法兰型
SBF-L Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	t
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBF6L	4	6	0 -0.010	12	0 -0.013	35	-0.3	28	5
SBF8L	4	8		15		45		32	5
SBF10L	4	10		19	0 -0.016	55		40	6
SBF12L	4	12		21		57		42	6
SBF13L	4	13		23		61		43	6
SBF16L	5	16		28		70		48	6
SBF20L	5	20	0 -0.012	32	0 -0.019	80		54	8
SBF25L	6	25		40		112		62	8
SBF30L	6	30		45		123		74	10
SBF35L	6	35	0 -0.015	52	0 -0.022	135		82	10
SBF40L	6	40		60		154		96	13
SBF50L	6	50	0 -0.020	80	0 -0.025	192		116	13
SBF60L	6	60		90		211		134	18

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

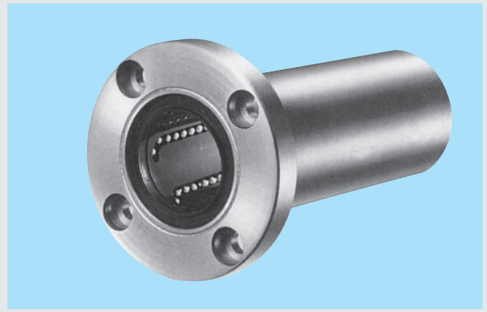
订购实例
Ordering example

SBF 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

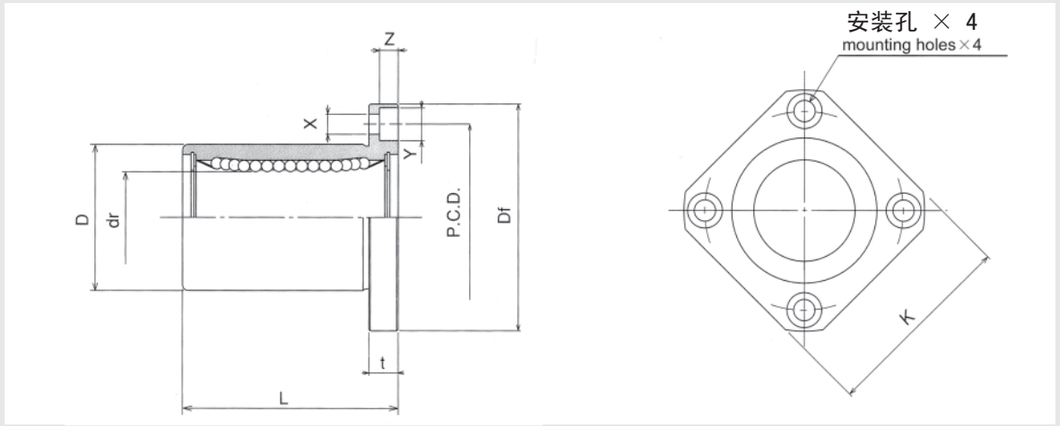
（单位Unit : mm）

PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
20	3.5	6.5	3.1	0.015	0.015	323	530	31
24	3.5	6.5	3.1	0.015	0.015	431	784	51
29	4.5	8	4.1	0.015	0.015	588	1100	98
32	4.5	8	4.1	0.015	0.015	813	1570	110
33	4.5	8	4.1	0.015	0.015	813	1570	130
38	4.5	8	4.1	0.015	0.015	1230	2350	190
43	5.5	9.5	5.1	0.020	0.020	1400	2740	260
51	5.5	9.5	5.1	0.020	0.020	1560	3140	540
60	6.6	11	6.1	0.020	0.020	2490	5490	680
67	6.6	11	6.1	0.025	0.025	2650	6270	1020
78	9	14	8.1	0.025	0.025	3430	8040	1570
98	9	14	8.1	0.025	0.025	6080	15900	3600
112	11	17.5	11.1	0.030	0.030	7550	20000	4500

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBK法兰型
SBK Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	K
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBK6	4	6	0 -0.009	12	0 -0.013	19	±0.3	28	22
SBK8S	4	8		15		17		32	25
SBK8	4	8		15		24		32	25
SBK10	4	10		19	0 -0.016	29		40	30
SBK12	4	12		21		30		42	32
SBK13	4	13		23		32		43	34
SBK16	5	16		28		37		48	37
SBK20	5	20	0 -0.010	32	0 -0.019	42		54	42
SBK25	6	25		40		59		62	50
SBK30	6	30		45		64		74	58
SBK35	6	35	0 -0.012	52	0 -0.022	70		82	64
SBK40	6	40		60		80		96	75
SBK50	6	50		80		100		116	92
SBK60	6	60	0 -0.005	90	0 -0.025	110		134	106

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

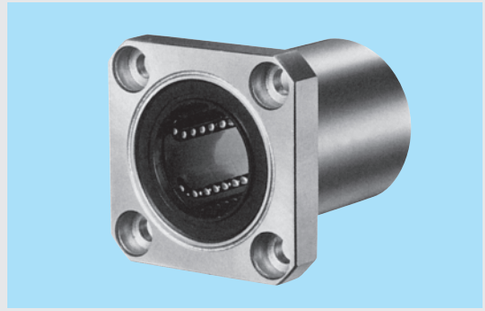
订购实例
Ordering example

SBK 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



•公制尺寸（亚洲型）Metric dimension (Asia type)
•现货 Stock available

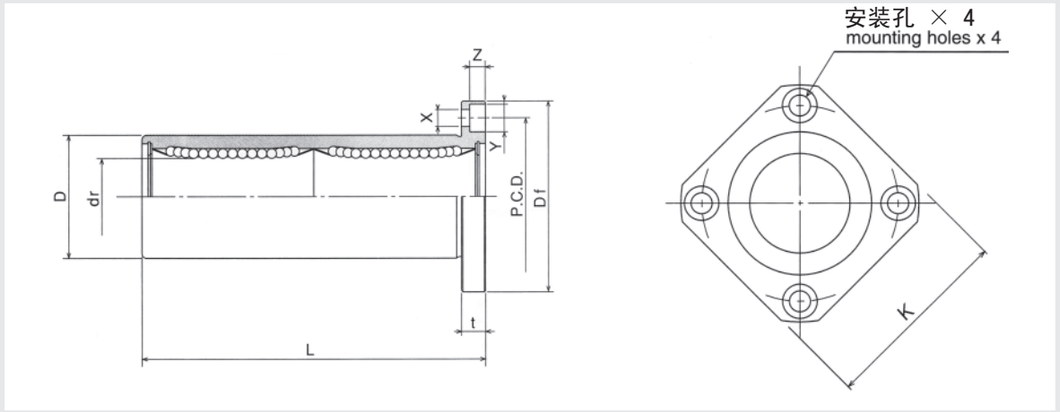
（单位Unit : mm）

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
5	20	3.5	6	3.1	0.012	0.012	206	265	24
5	24	3.5	6	3.1	0.012	0.012	176	216	32
5	24	3.5	6	3.1	0.012	0.012	274	392	37
6	29	4.5	7.5	4.1	0.012	0.012	372	549	72
6	32	4.5	7.5	4.1	0.012	0.012	510	784	76
6	33	4.5	7.5	4.1	0.012	0.012	510	784	88
6	38	4.5	7.5	4.1	0.012	0.012	774	1180	120
8	43	5.5	9	5.1	0.015	0.015	882	1370	180
8	51	5.5	9	5.1	0.015	0.015	980	1570	340
10	60	6.6	11	6.1	0.015	0.015	1570	2740	470
10	67	6.6	11	6.1	0.020	0.020	1670	3140	650
13	78	9	14	8.1	0.020	0.020	2160	4020	1060
13	98	9	14	8.1	0.020	0.020	3820	7940	2200
18	112	11	17	11.1	0.025	0.025	4700	10000	3000

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBK-L 法兰型
SBK-L Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	K
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBK6L	4	6	0 -0.010	12	0 -0.013	35	-0.3	28	22
SBK8L	4	8		15		45		32	25
SBK10L	4	10		19		55		40	30
SBK12L	4	12		21	0 -0.016	57		42	32
SBK13L	4	13		23		61		43	34
SBK16L	5	16		28		70		48	37
SBK20L	5	20	0 -0.012	32	0 -0.019	80		54	42
SBK25L	6	25		40		112		62	50
SBK30L	6	30		45		123		74	58
SBK35L	6	35	0 -0.015	52	0 -0.022	135		82	64
SBK40L	6	40		60		154		96	75
SBK50L	6	50	0 -0.020	80	0 -0.025	192		116	92
SBK60L	6	60		90		211		134	106

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

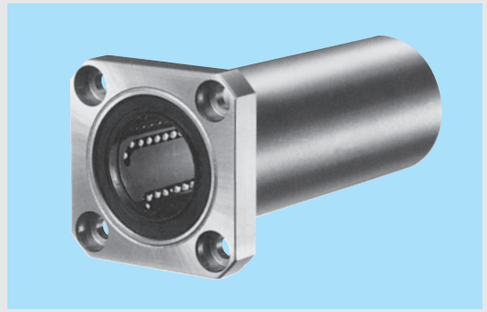
订购实例
Ordering example

SBK 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

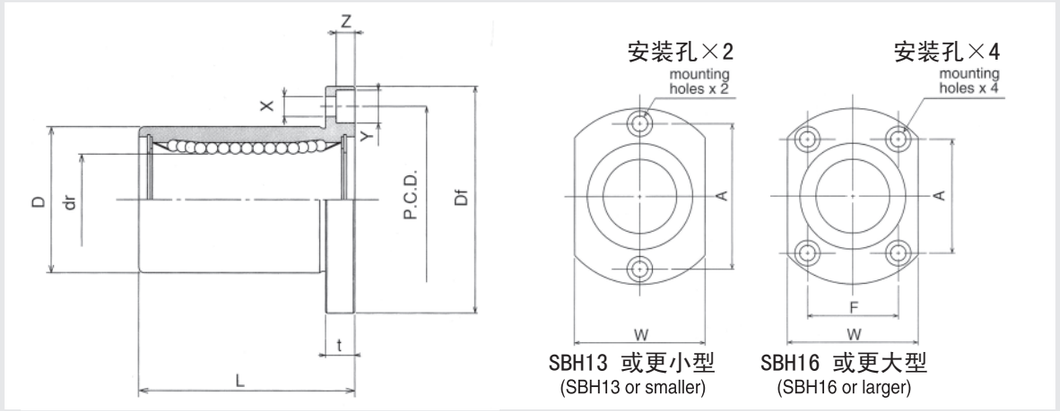
（单位Unit : mm）

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
5	20	3.5	6.5	3.1	0.015	0.015	323	530	25
5	24	3.5	6.5	3.1	0.015	0.015	431	784	43
6	29	4.5	8	4.1	0.015	0.015	588	1100	78
6	32	4.5	8	4.1	0.015	0.015	813	1570	90
6	33	4.5	8	4.1	0.015	0.015	813	1570	108
6	38	4.5	8	4.1	0.015	0.015	1230	2350	165
8	43	5.5	9.5	5.1	0.020	0.020	1400	2740	225
8	51	5.5	9.5	5.1	0.020	0.020	1560	3140	500
10	60	6.6	11	6.1	0.020	0.020	2490	5490	590
10	67	6.6	11	6.1	0.025	0.025	2650	6270	930
13	78	9	14	8.1	0.025	0.025	3430	8040	1380
13	98	9	14	8.1	0.025	0.025	6080	15900	3400
18	112	11	17.5	11.1	0.030	0.030	7550	20000	4060

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBH 法兰型
SBH Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	W
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBH6	4	6	0 -0.009	12	0 -0.013	19	±0.3	28	18
SBH8	4	8		15		24		32	21
SBH10	4	10		19	0 -0.016	29		40	25
SBH12	4	12		21		30		42	27
SBH13	4	13		23		32		43	29
SBH16	5	16		28		37		48	34
SBH20	5	20	0 -0.010	32	0 -0.019	42		54	38
SBH25	6	25		40		59		62	46
SBH30	6	30		45		64		74	51

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

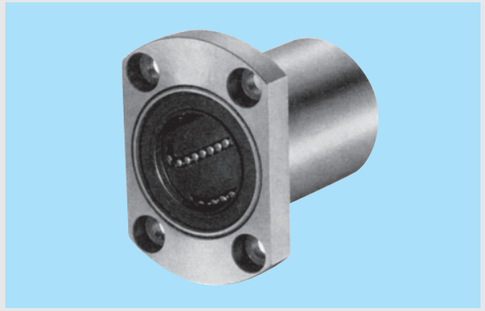
订购实例
Ordering example

SBH 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

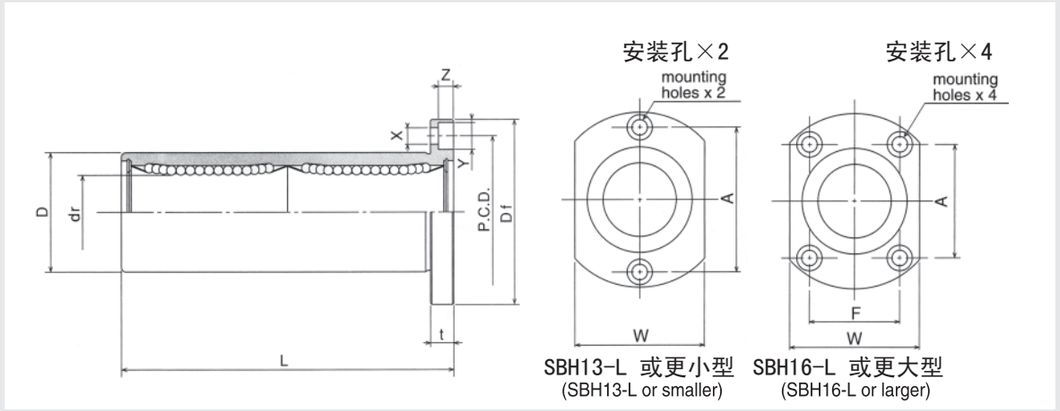
（单位Unit : mm）

t	A	F	X	Y	Z	E	S	C [N]	Co [N]	M [g]
5	20	-	3.5	6	3.1	0.012	0.012	206	265	21
5	24	-	3.5	6	3.1	0.012	0.012	274	392	33
6	29	-	4.5	7.5	4.1	0.012	0.012	372	549	64
6	32	-	4.5	7.5	4.1	0.012	0.012	510	784	68
6	33	-	4.5	7.5	4.1	0.012	0.012	510	784	81
6	31	22	4.5	7.5	4.1	0.012	0.012	774	1180	112
8	36	24	5.5	9	5.1	0.015	0.015	882	1370	167
8	40	32	5.5	9	5.1	0.015	0.015	980	1570	325
10	49	35	6.6	11	6.1	0.015	0.015	1570	2740	388

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBH-L 法兰型
SBH-L Flange type



SBH13-L 或更小型
(SBH13-L or smaller)

SBH16-L 或更大型
(SBH16-L or larger)

型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	W
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBH6L	4	6	0 -0.010	12	0 -0.013	35	-0.3	28	18
SBH8L	4	8		15		45		32	21
SBH10L	4	10		19	0 -0.016	55		40	25
SBH12L	4	12		21		57		42	27
SBH13L	4	13		23		61		43	29
SBH16L	5	16		28		70		48	34
SBH20L	5	20	0 -0.012	32	0 -0.019	80		54	38
SBH25L	6	25		40		112		62	46
SBH30L	6	30		45		123		74	51

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

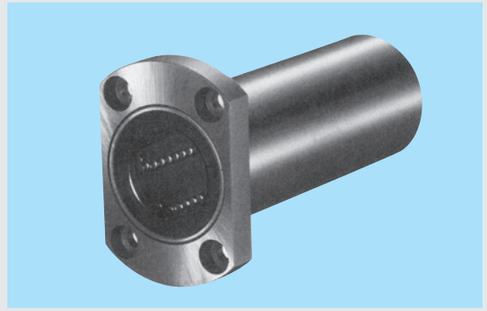
订购实例
Ordering example

SBH 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（亚洲型）Metric dimension (Asia type)
- 现货 Stock available

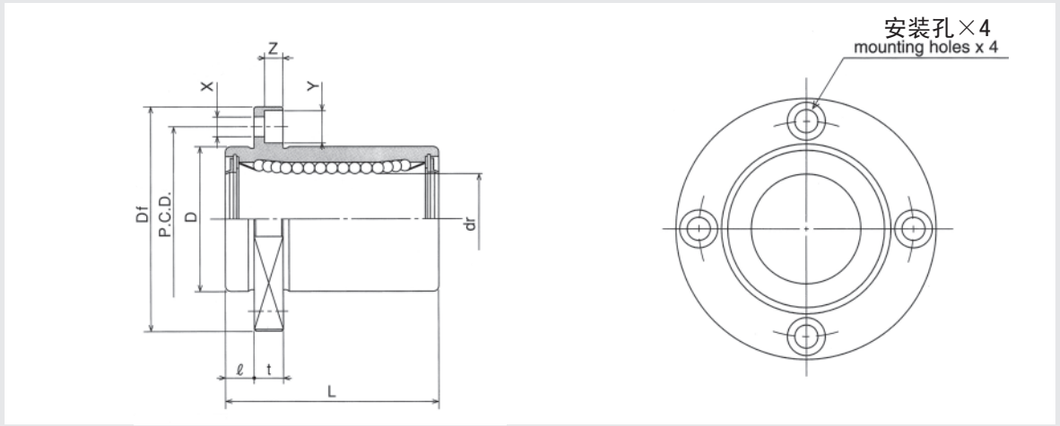
（单位Unit : mm）

t	A	F	X	Y	Z	E	S	C [N]	Co [N]	M [g]
5	20	-	3.5	6.5	3.1	0.015	0.015	323	529	28
5	24	-	3.5	6.5	3.1	0.015	0.015	431	784	47
6	29	-	4.5	8	4.1	0.015	0.015	588	1100	90
6	32	-	4.5	8	4.1	0.015	0.015	813	1570	102
6	33	-	4.5	8	4.1	0.015	0.015	813	1570	123
6	31	22	4.5	8	4.1	0.015	0.015	1230	2350	182
8	36	24	5.5	9.5	5.1	0.020	0.020	1400	2740	247
8	40	32	5.5	9.5	5.1	0.020	0.020	1560	3140	525
10	49	35	6.5	11	6.1	0.020	0.020	2490	5490	645

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBF-A法兰型
SBF-A Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	ℓ	Df
SBF16UU-A	5	16	0 -0.009	28	0 -0.016	37	±0.3	6	48
SBF20UU-A	5	20	0 -0.010	32	0 -0.019	42	±0.3	8	54
SBF25UU-A	6	25	0 -0.010	40	0 -0.019	59	±0.3	8	62
SBF30UU-A	6	30	0 -0.010	45	0 -0.019	64	±0.3	10	74
SBF35UU-A	6	35	0 -0.012	52	0 -0.022	70	±0.3	10	82

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

SBF 25 UU – A – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : UU(Seals on bothside)

[3] A：含导引端
A : With pilot end

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



• 公制尺寸（亚洲型）
Metric dimension (Asia type)
• 订单生产（请联系SBC公司）
Order made (Please contact SBC)

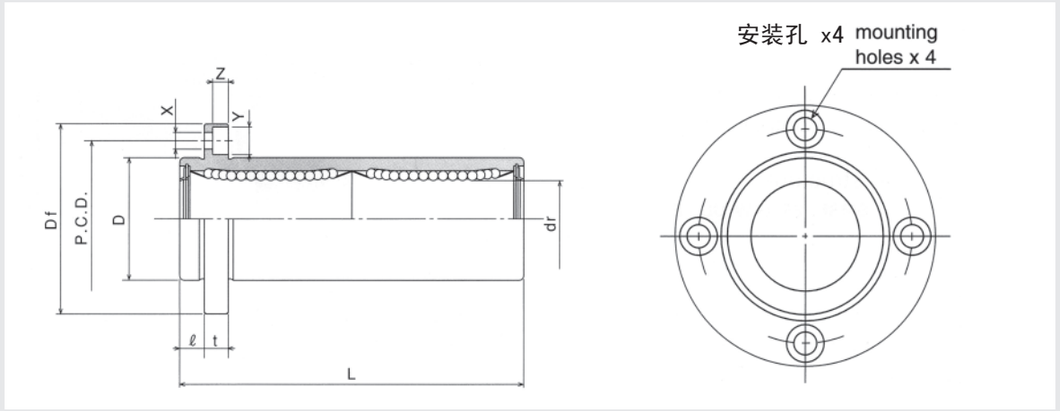
（单位Unit : mm）

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	38	4.5	7.5	4.1	0.012	0.012	774	1180	120
8	43	5.5	9	5.1	0.015	0.015	882	1370	180
8	51	5.5	9	5.1	0.015	0.015	980	1570	340
10	60	6.6	11	6.1	0.015	0.015	1570	2740	470
10	67	6.6	11	6.1	0.020	0.020	1670	3140	650

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBF-LA法兰型
SBF-LA Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	Df
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBF16LUU-A	5	16	0 -0.010	28	0 -0.016	70	±0.3	6	48
SBF20LUU-A	5	20	0 -0.012	32	0 -0.019	80		8	54
SBF25LUU-A	6	25		40		112		8	62
SBF30LUU-A	6	30		45		123		10	74
SBF35LUU-A	6	35	0 -0.015	52	0 -0.022	135		10	82

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

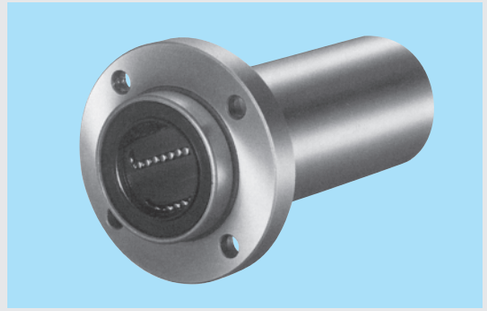
SBF 25L UU – A – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] A：含导引端
A : With pilot end

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



• 公制尺寸（亚洲型）
Metric dimension (Asia type)
• 订单生产（请联系SBC公司）
Order made (Please contact SBC)

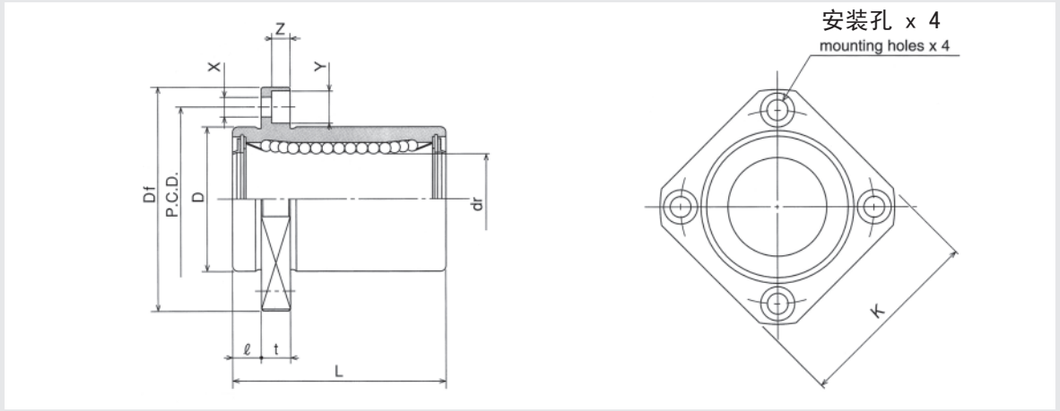
（单位Unit : mm）

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	38	4.5	7.5	4.1	0.015	0.015	1230	2350	190
8	43	5.5	9	5.1	0.020	0.020	1400	2740	260
8	51	5.5	9	5.1	0.020	0.020	1560	3140	540
10	60	6.6	11	6.1	0.020	0.020	2490	5490	680
10	67	6.6	11	6.1	0.025	0.025	2650	6270	1020

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBK–A法兰型
SBK-A Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	K
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBK16UU-A	5	16	0 -0.009	28	0 -0.016	37	±0.3	6	37
SBK20UU-A	5	20	0 -0.010	32	0 -0.019	42		8	42
SBK25UU-A	6	25		40		59		8	50
SBK30UU-A	6	30		45		64		10	58
SBK35UU-A	6	35	0 -0.012	52	0 -0.022	70		10	64

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

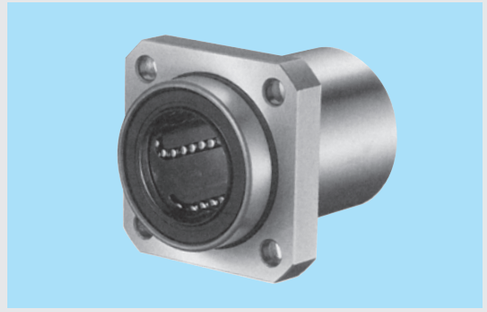
SBK 25 UU – A – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] A：含导引端
A : With pilot end

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



• 公制尺寸（亚洲型）
Metric dimension (Asia type)
• 订单生产（请联系SBC公司）
Order made (Please contact SBC)

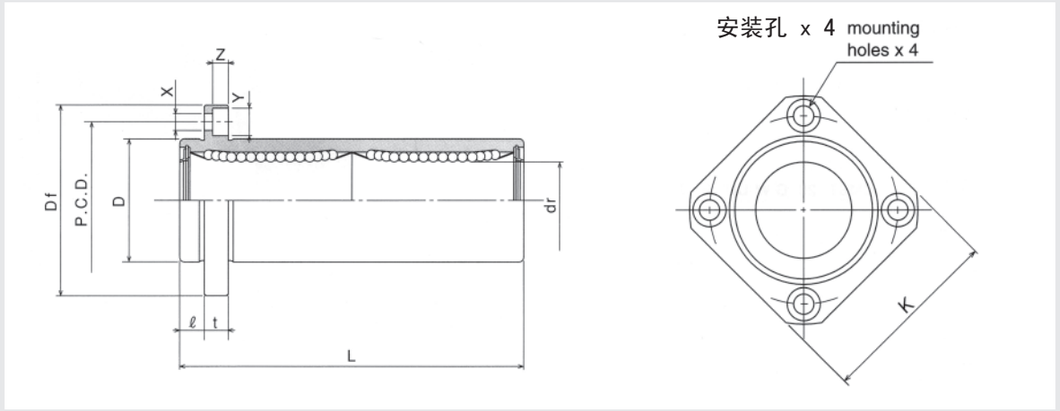
（单位Unit : mm）

Df	t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
48	6	38	4.5	7.5	4.1	0.012	0.012	774	1180	120
54	8	43	5.5	9	5.1	0.015	0.015	882	1370	180
62	8	51	5.5	9	5.1	0.015	0.015	980	1570	340
74	10	60	6.6	11	6.1	0.015	0.015	1570	2740	470
82	10	67	6.6	11	6.1	0.020	0.020	1670	3140	650

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBK-LA法兰型
SBK-LA Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	ℓ	K
SBK16LUU-A	5	16	0 -0.010	28	0 -0.016	70	±0.3	6	37
SBK20LUU-A	5	20	0 -0.012	32	0 -0.019	80		8	42
SBK25LUU-A	6	25		40		112		8	50
SBK30LUU-A	6	30		45		123		10	58
SBK35LUU-A	6	35	0 -0.015	52	0 -0.022	135		10	64

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

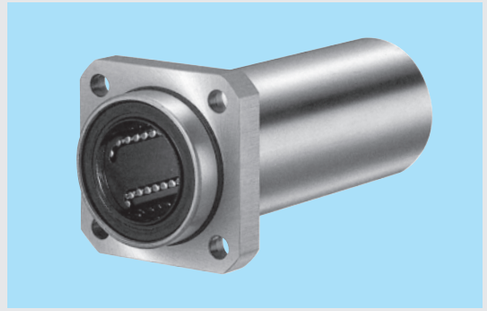
SBK 25L UU – A – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] A：含导引端
A : With pilot end

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



• 公制尺寸（亚洲型）
Metric dimension (Asia type)
• 订单生产（请联系SBC公司）
Order made (Please contact SBC)

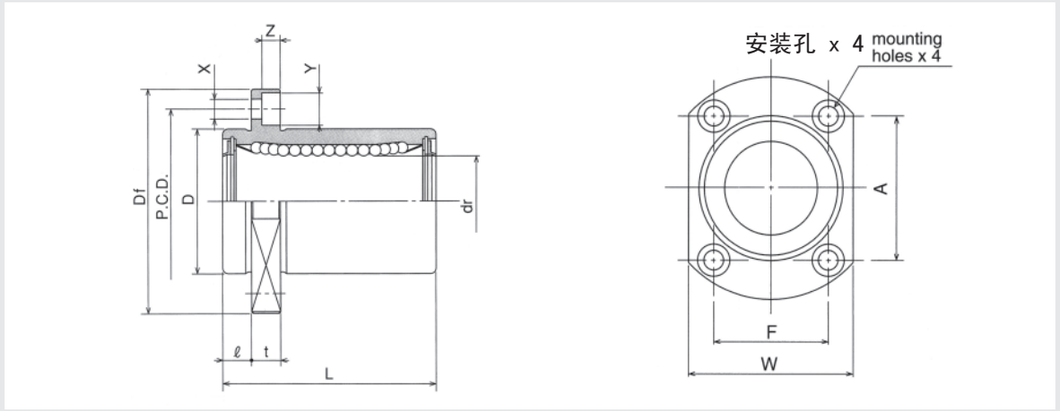
（单位Unit : mm）

Df	t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
48	6	38	4.5	7.5	4.1	0.015	0.015	1230	2350	190
54	8	43	5.5	9	5.1	0.020	0.020	1400	2740	260
62	8	51	5.5	9	5.1	0.020	0.020	1560	3140	540
74	10	60	6.6	11	6.1	0.020	0.020	2490	5490	680
82	10	67	6.6	11	6.1	0.025	0.025	2650	6270	1020

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBH-A法兰型
SBH-A Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	Df
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBH16UU-A	5	16	0 -0.009	28	0 -0.016	37	±0.3	6	48
SBH20UU-A	5	20	0 -0.010	32	0 -0.019	42		8	54
SBH25UU-A	6	25		40		59		8	62
SBH30UU-A	6	30		45		64		10	74

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

SBH 25 UU – A – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] A：含导引端
A : With pilot end

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



• 公制尺寸（亚洲型）
Metric dimension (Asia type)
• 订单生产（请联系SBC公司）
Order made (Please contact SBC)

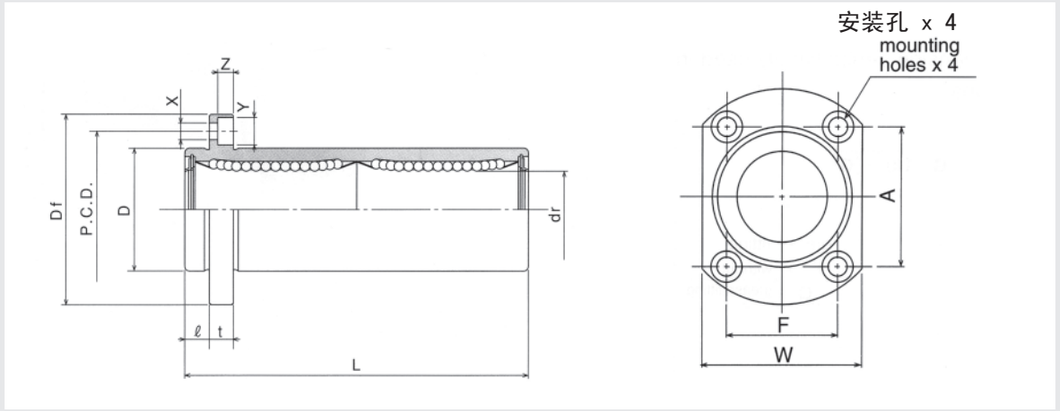
（单位Unit : mm）

t	W	A	F	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	34	31	22	4.5	7.5	4.1	0.012	0.012	774	1180	120
8	38	36	24	5.5	9	5.1	0.015	0.015	882	1370	180
8	46	40	32	5.5	9	5.1	0.015	0.015	980	1570	340
10	51	49	35	6.6	11	6.1	0.015	0.015	1570	2740	470

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBH-LA法兰型
SBH-LA Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	Df
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBH16LUU-A	5	16	0 -0.009	28	0 -0.016	70	±0.3	6	48
SBH20LUU-A	5	20	0 -0.012	32	0 -0.019	80		8	54
SBH25LUU-A	6	25		40		112		8	62
SBH30LUU-A	6	30		45		123		10	74

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

SBH 25L UU – A – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] A：含导引端
A : With pilot end

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



- 公制尺寸（亚洲型）
  Metric dimension (Asia type)
- 订单生产（请联系SBC公司）
  Order made (Please contact SBC)

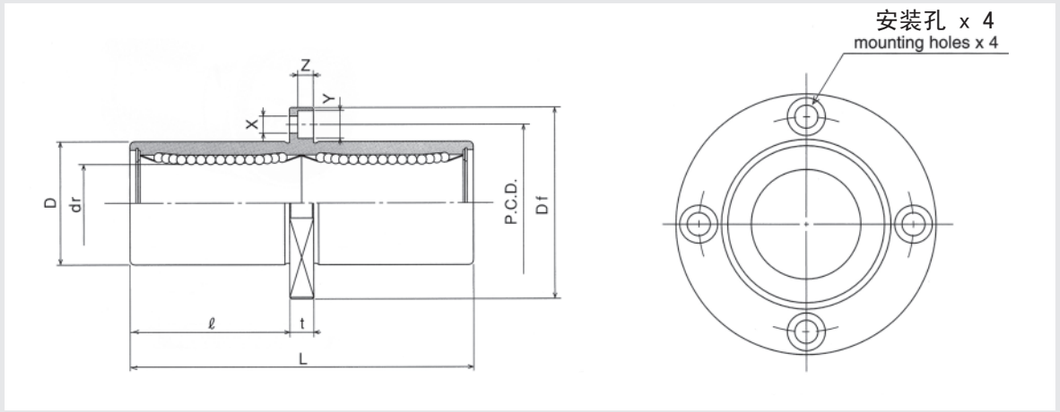
（单位Unit : mm）

t	W	A	F	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	34	31	22	4.5	7.5	4.1	0.015	0.015	1230	2350	190
8	38	36	24	5.5	9	5.1	0.020	0.020	1400	2740	260
8	46	40	32	5.5	9	5.1	0.020	0.020	1560	3140	540
10	51	49	35	6.6	11	6.1	0.020	0.020	2490	5490	680

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBFC法兰型
SBFC Flange type



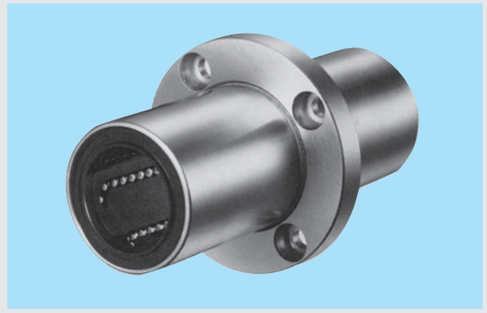
订购实例
Ordering example

SBFC 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



- 公制尺寸（亚洲型）
  Metric dimension (Asia type)
- 订单生产（请联系SBC公司）
  Order made (Please contact SBC)

（单位Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	Df
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBFC16UU	5	16	0 -0.010	28	0 -0.016	70	±0.3	32	48
SBFC20UU	5	20	0 -0.012	32	0 -0.019	80		36	54
SBFC25UU	6	25		40		112		52	62
SBFC30UU	6	30		45		123		56.5	74
SBFC35UU	6	35	0 -0.015	52	0 -0.022	135		62.5	82

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	38	4.5	8	4.1	0.015	0.015	1230	2350	190
8	43	5.5	9.5	5.1	0.020	0.020	1400	2740	260
8	51	5.5	9.5	5.1	0.020	0.020	1560	3140	540
10	60	6.6	11	6.1	0.020	0.020	2490	5490	680
10	67	6.6	11	6.1	0.025	0.025	2650	6270	1020

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

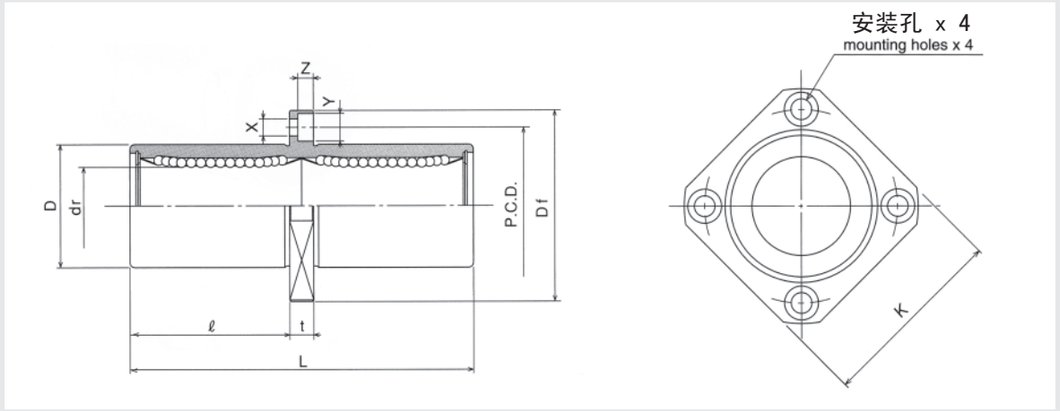
❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBKC 法兰型
SBKC Flange type



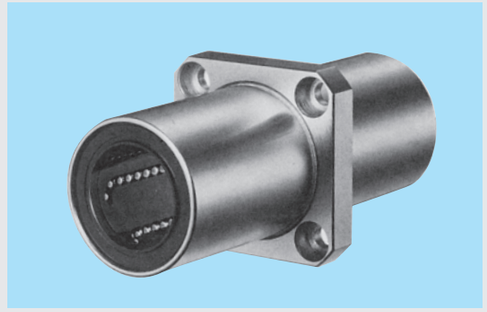
订购实例
Ordering example

SBKC 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



- 公制尺寸（亚洲型）
  Metric dimension (Asia type)
- 订单生产（请联系SBC公司）
  Order made (Please contact SBC)

（单位Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	ℓ	Df
SBKC16UU	5	16	0 -0.010	28	0 -0.016	70	±0.3	32	48
SBKC20UU	5	20	0 -0.012	32	0 -0.019	80		36	54
SBKC25UU	6	25		40		112		52	62
SBKC30UU	6	30		45		123		56.5	74
SBKC35UU	6	35	0 -0.015	52	0 -0.022	135		62.5	82

K	t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
37	6	38	4.5	7.5	4.1	0.015	0.015	1230	2350	190
42	8	43	5.5	9	5.1	0.020	0.020	1400	2740	260
50	8	51	5.5	9	5.1	0.020	0.020	1560	3140	540
58	10	60	6.6	11	6.1	0.020	0.020	2490	5490	680
64	10	67	6.6	11	6.1	0.015	0.015	2650	6270	1020

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

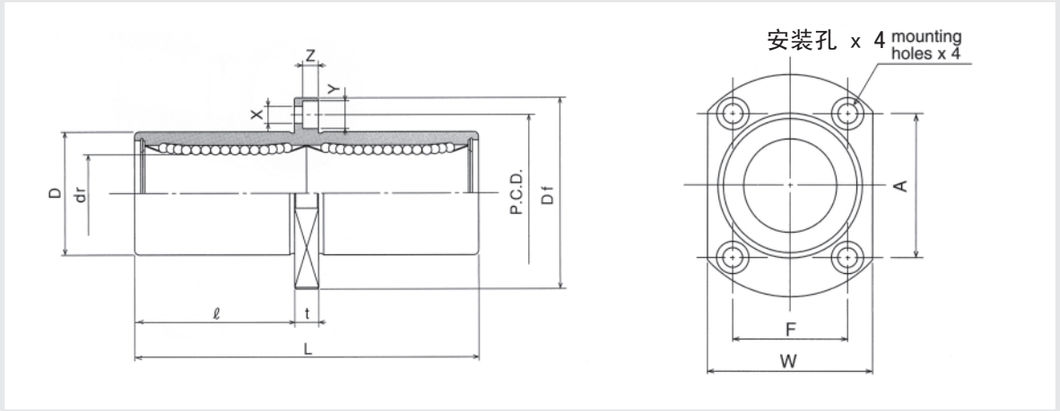
❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SBHC法兰型
SBHC Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	Df
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBHC16UU	5	16	0 -0.010	28	0 -0.016	70	±0.3	32	48
SBHC20UU	5	20	0 -0.012	32	0 -0.019	80		36	54
SBHC25UU	6	25		40		112		52	62
SBHC30UU	6	30		45		123		56.5	74

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

SBHC 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)

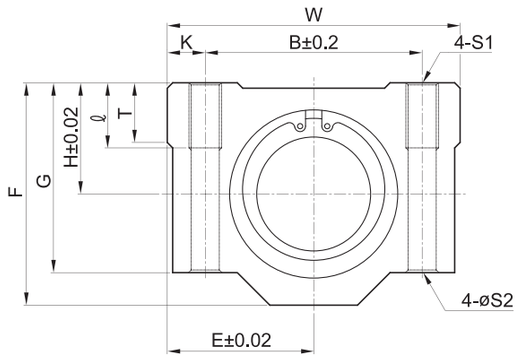


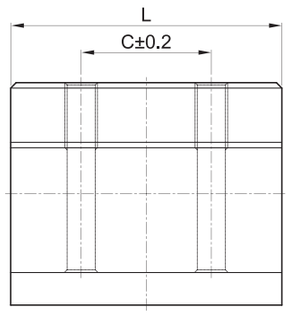
- 公制尺寸（亚洲型）
  Metric dimension (Asia type)
- 订单生产（请联系SBC公司）
  Order made (Please contact SBC)

（单位Unit : mm）

t	W	A	F	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	34	31	22	38	4.5	7.5	4.1	0.015	0.015	1230	2350	190
8	38	36	24	43	5.5	9	5.1	0.020	0.020	1400	2740	260
8	46	40	32	51	5.5	9	5.1	0.020	0.020	1560	3140	540
10	51	49	35	60	6.6	11	6.1	0.020	0.020	2490	5490	680

SC 型滚珠轴承
SC ball bush housing





订购实例
Ordering example

SC 25 UU
[1] [2]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)



- 公制尺寸（亚洲型）
  Metric dimension (Asia type)
- 现货
  Stock available

（单位Unit : mm）

型号 Model number	H	E	W	L	F	G	T
SC 12	15	21	42	36	28	24	8
SC 13	15	22	44	39	30	24.5	8
SC 16	19	25	50	44	38.5	32.5	9
SC 20	21	27	54	50	41	35	11
SC 25	26	38	76	67	51.5	42	12
SC 30	30	39	78	72	59.5	49	15
SC 35	34	45	90	80	68	54	18
SC 40	40	51	102	90	78	62	20

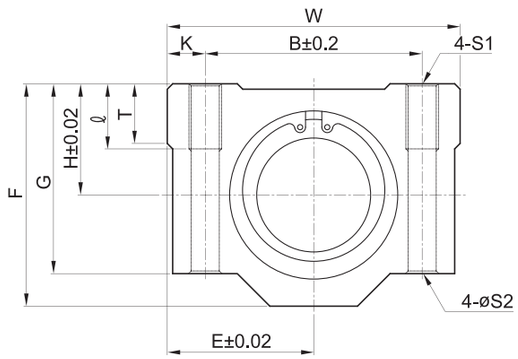
B	C	K	S1	S2	ℓ	C [N]	Co [N]
30.5	26	5.75	M5	4.3	12	510	780
33	26	5.5	M5	4.3	12	510	780
36	34	7	M5	4.3	12	770	1180
40	40	7	M6	5.2	12	880	1350
54	50	11	M8	7	18	980	1550
58	58	10	M8	7	18	1570	2700
70	60	10	M8	7	18	1670	3150
80	60	11	M10	8.7	25	2160	4020

❶ C : 基本额定动载荷
Basic dynamic load rating
❷ Co :基本额定静载荷
Basic static load rating

直线轴承
Linear Bushings

亚洲型滚珠轴承
Asia type Ball Bushing

SC-L型滚珠轴承
SC-L ball bush housing



订购实例
Ordering example

SC 25L UU
[1] [2]

[1] 型号
Model number

[2] 密封：无符号（无密封），
UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)



•公制尺寸（亚洲型）
Metric dimension (Asia type)

•现货
Stock available

(单位 Unit : mm)

型号 Model number	H	E	W	L	F	G	T
SC 12L	15	21	42	70	28	24	8
SC 13L	15	22	44	75	30	24.5	8
SC 16L	19	25	50	85	38.5	32.5	9
SC 20L	21	27	54	96	41	35	11
SC 25L	26	38	76	130	51.5	42	12
SC 30L	30	39	78	140	59.5	49	15
SC 35L	34	45	90	155	68	54	18
SC 40L	40	51	102	175	78	62	20

B	C	K	S1	S2	ℓ	C [N]	Co [N]
30.5	50	5.75	M5	4.3	12	813	1570
33	50	5.5	M5	4.3	12	813	1570
36	60	7	M5	4.3	12	1230	2350
40	70	7	M6	5.2	12	1400	2740
54	100	11	M8	7	18	1560	3140
58	110	10	M8	7	18	2490	5490
70	120	10	M8	7	18	2650	6270
80	140	11	M10	8.7	25	3430	8040

❶ C：基本额定动载荷
C : Basic dynamic load rating

❷ Co：基本额定静载荷
Co : Basic static load rating

欧洲型滚珠轴承
Europe type Ball Bushing

公制尺寸
Metric dimension

在欧洲各国广泛应用
Widely used in Europe countries

合成树脂保持架
Synthetic resin retainer

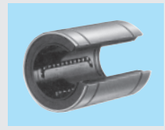
多种尺寸和型号
Variety sizes and models

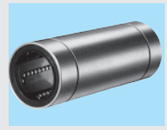
欧洲型滚珠轴承是在欧洲各国广泛应用的系列公制尺寸轴承。
Europe type ball bushing is a metric dimension series widely used in europe countries.

标准型：现货 Standard type : Stock available


SBE


SBE-AJ


SBE-OP


SBE-L

法兰型：现货Flange type : Stock available


SBFE


SBKE


SBFE-L


SBKE-L

法兰型：订单生产 Flange type : Order made


SBFCE


SBKCE


SBHCE

滚珠轴承：现货 Ball bush housing : Stock available

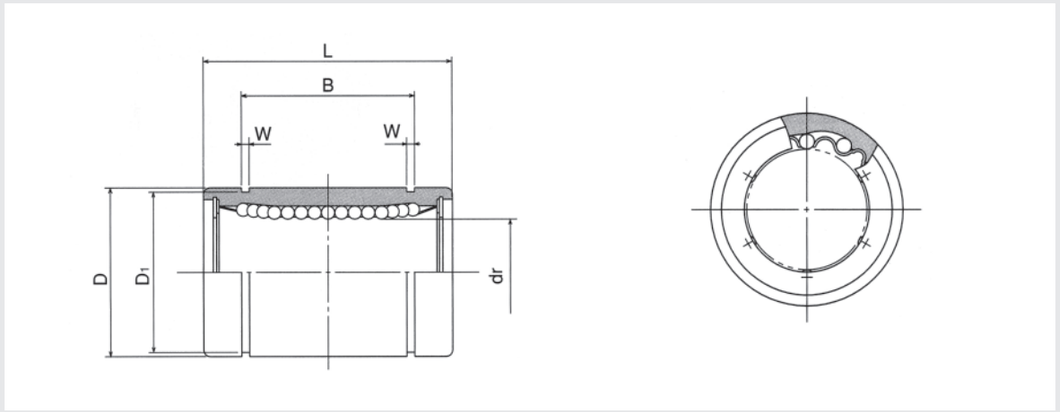

SCE


SCE-L

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBE标准型
SBE Standard type



订购实例
Ordering example

SBE 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

表面处理：无符号（标准），NM（镀镍）
[3] Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货 Stock available
- 标准型 Standard type

（单位 Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr	dr 容许公差 Permissible tolerance	D	D 容许公差 Permissible tolerance	L	L 容许公差 Permissible tolerance	B	B 容许公差 Permissible tolerance
SBE5	3	5	+0.008 0	12	0 -0.008	22	0 -0.2	14.5	0 -0.2
SBE8	4	8		16		25		16.5	
SBE12	4	12		22	0 -0.009	32		22.9	
SBE16	5	16	+0.009 -0.001	26		36		24.9	
SBE20	5	20		32	0 -0.011	45		31.5	
SBE25	6	25	+0.011 -0.001	40		58	0 -0.3	44.1	0 -0.3
SBE30	6	30		47		68		52.1	
SBE40	6	40	+0.013 -0.002	62	0 -0.013	80		60.6	
SBE50	6	50		75		100		77.6	
SBE60	6	60		90	0 -0.015	125	0 -0.4	101.7	0 -0.4

W	D1	E	RC	C [N]	Co [N]	M [g]
1.1	11.5	0.012	-0.005	200	260	11
1.1	15.2	0.012	-0.005	260	400	20
1.3	21	0.012	-0.007	410	590	41
1.3	24.9	0.012	-0.007	770	1170	65
1.6	30.5	0.015	-0.009	860	1370	91
1.85	38	0.015	-0.009	980	1560	215
1.85	44.5	0.015	-0.009	1560	2740	325
2.15	59	0.017	-0.013	2150	4010	705
2.65	72	0.017	-0.013	3820	7930	1130
3.15	86.5	0.020	-0.016	4700	9990	2220

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

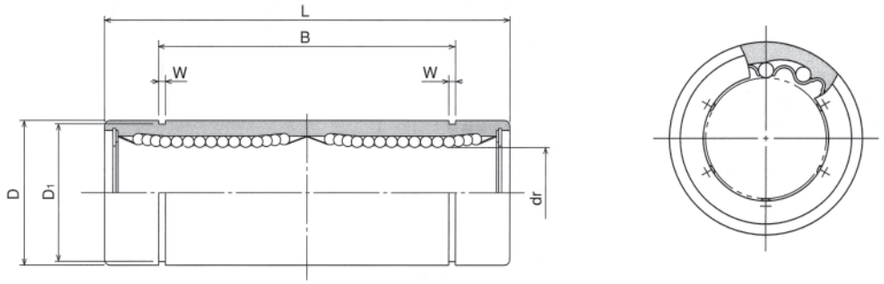
❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBE-L标准型
SBE-L Standard type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		B	
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance
SBE8L	4	8	+0.009 -0.001	16	0 -0.009	45	0 -0.3	33	0 -0.3
SBE12L	4	12		22	0 -0.011	57		45.8	
SBE16L	5	16	+0.011 -0.001	26		70		49.8	
SBE20L	5	20		32	0 -0.013	80		61	
SBE25L	6	25	+0.013 -0.002	40		112	0 -0.4	82	0 -0.4
SBE30L	6	30		47		123		104.2	
SBE40L	6	40	+0.016 -0.004	62	0 -0.015	154		121.2	
SBE50L	6	50		75	0 -0.020	192		155.2	
SBE60L	6	60		90		211		170	

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ C : 基本额定动载荷
Basic dynamic load rating

❸ Co : 基本额定静载荷
Basic static load rating

❹ M : 质量
Mass

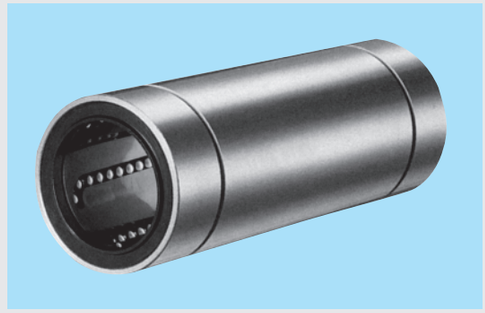
订购实例
Ordering example

SBE 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货 Stock available

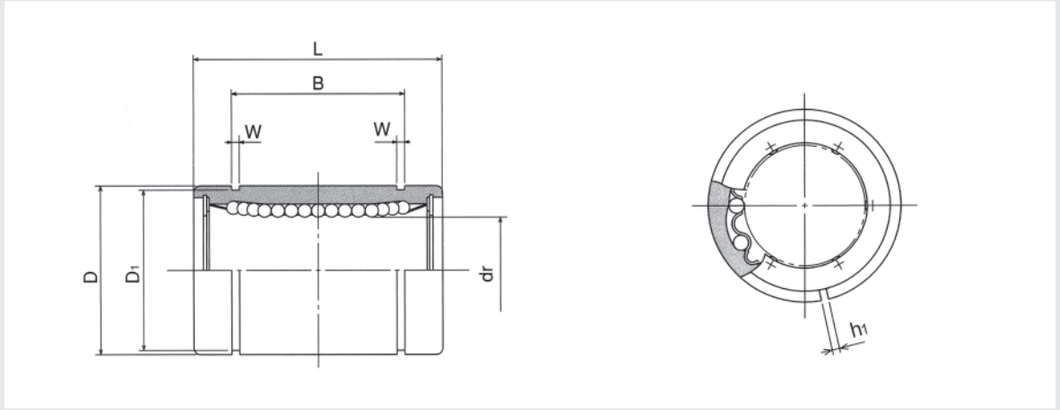
（ 单位Unit : mm)

W	D1	E	C [N]	Co [N]	M [g]
1.1	15.2	0.015	421	804	40
1.3	21	0.015	813	1570	80
1.3	24.9	0.015	921	1780	115
1.6	30.5	0.017	1370	2740	180
1.85	38	0.017	1570	3140	430
1.85	44.5	0.017	2500	5490	615
2.15	59	0.020	3430	8040	1400
2.65	72	0.020	6080	15900	2320
3.15	86.5	0.025	7550	20000	3920

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBE-AJ间隙可调型
SBE-AJ clearance adjustable type



订购实例
Ordering example

SBE 25 UU – AJ – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] AJ：间隙可调
AJ : Clearance adjustable

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货 Stock available

（单位Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		B	
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance
SBE5-AJ	3	5	+0.008 0	12	0 -0.008	22	0 -0.2	14.5	0 -0.2
SBE8-AJ	4	8		16		25		16.5	
SBE12-AJ	4	12		22	0 -0.009	32		22.9	
SBE16-AJ	5	16	+0.009 -0.001	26		36		24.9	
SBE20-AJ	5	20		32	0 -0.011	45		31.5	
SBE25-AJ	6	25	+0.011 -0.001	40		58	0 -0.3	44.1	0 -0.3
SBE30-AJ	6	30		47		68		52.1	
SBE40-AJ	6	40	+0.013 -0.002	62	0 -0.013	80		60.6	
SBE50-AJ	6	50		75		100		77.6	
SBE60-AJ	6	60		90	0 -0.015	125	0 -0.4	101.7	0 -0.4

W	D1	h	E	RC	C [N]	Co [N]	M [g]
1.1	11.5	1	0.012	-0.005	200	260	11
1.1	15.2	1	0.012	-0.005	260	400	20
1.3	21	1.5	0.012	-0.007	410	590	41
1.3	24.9	1.5	0.012	-0.007	770	1170	65
1.6	30.5	2	0.015	-0.009	860	1370	91
1.85	38	2	0.015	-0.009	980	1560	215
1.85	44.5	2	0.015	-0.009	1560	2740	325
2.15	59	3	0.017	-0.013	2150	4010	705
2.65	72	3	0.017	-0.013	3820	7930	1130
3.15	86.5	3	0.020	-0.016	4700	9990	2220

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

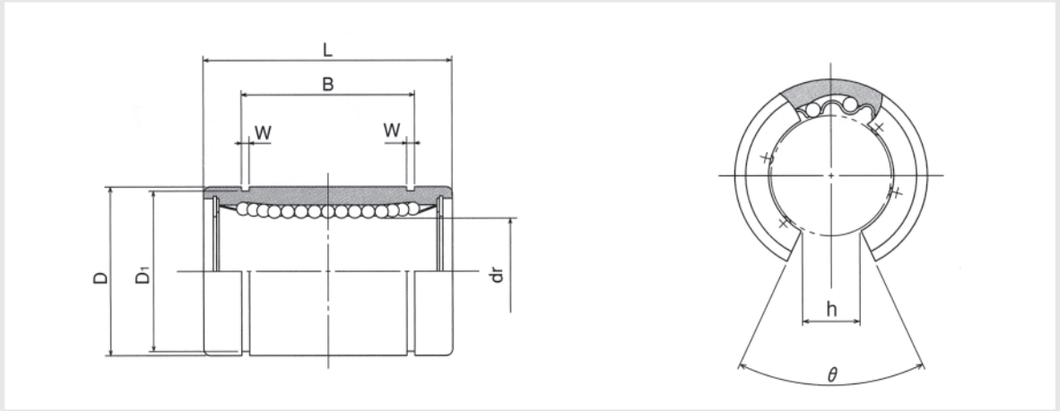
❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBE-OP开放型
SBE-OP open type



订购实例
Ordering example

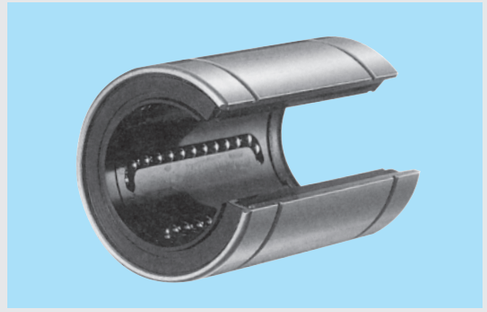
SBE 25 UU – OP – NM
[1] [2] [3] [4]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] OP：开放型
OP : Open type

[4] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货 Stock available

（单位Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	B	容许公差 Permissible tolerance
SBE12-OP	3	12	+0.008 0	22	0 -0.009	32	0 -0.2	22.9	0 -0.2
SBE16-OP	4	16	+0.009 -0.001	26		36		24.9	
SBE20-OP	4	20		32	0 -0.011	45		31.5	
SBE25-OP	5	25	+0.011 -0.001	40		58	0 -0.3	44.1	0 -0.3
SBE30-OP	5	30		47		68		52.1	
SBE40-OP	5	40	+0.013 -0.002	62	0 -0.013	80		60.6	
SBE50-OP	5	50		75		100		77.6	
SBE60-OP	5	60		90	0 -0.015	125	0 -0.4	101.7	0 -0.4

W	D1	h1	θ	E	RC	C [N]	Co [N]	M [g]
1.3	21	7.5	78	0.012	-0.007	410	590	41
1.3	24.9	10	78	0.012	-0.007	770	1170	65
1.6	30.5	10	60	0.015	-0.009	860	1370	91
1.85	38	12.5	60	0.015	-0.009	980	1560	215
1.85	44.5	12.5	50	0.015	-0.009	1560	2740	325
2.15	59	16.8	50	0.017	-0.013	2150	4010	705
2.65	72	21	50	0.017	-0.013	3820	7930	1130
3.15	86.5	27.2	54	0.020	-0.016	4700	9990	2220

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ RC : 容许径向间隙
Permissible radial clearance

❸ C : 基本额定动载荷
Basic dynamic load rating

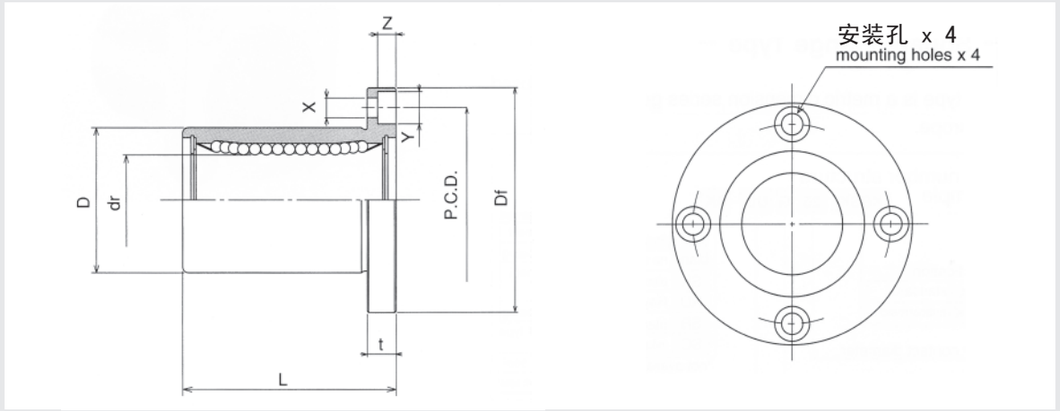
❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBFE法兰型
SBFE Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	t
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBFE8	4	8	+0.008 0	16	0 -0.013	25	±0.3	32	5
SBFE12	4	12		22	0 -0.016	32		42	6
SBFE16	5	16	+0.009 -0.001	26		36		46	6
SBFE20	5	20		32	0 -0.019	45		54	8
SBFE25	6	25	+0.011 -0.001	40		58		62	8
SBFE30	6	30		47	0 -0.022	68		76	10
SBFE40	6	40	+0.013 -0.002	62		80		98	13
SBFE50	6	50		75	0 -0.025	100		112	13
SBFE60	6	60		90		125		134	18

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

订购实例
Ordering example

SBFE 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货 Stock available

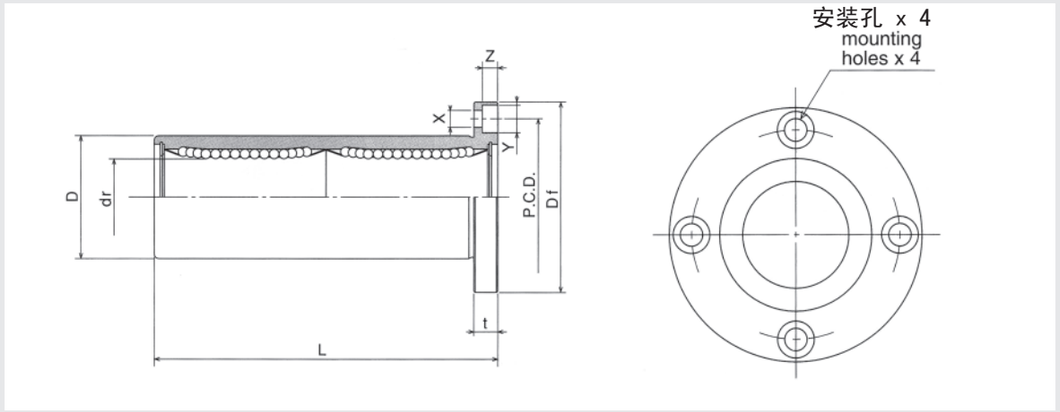
（单位 Unit : mm）

PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
24	3.5	6	3.1	0.012	0.012	265	402	41
32	4.5	7.5	4.1	0.012	0.012	510	784	80
36	4.5	7.5	4.1	0.012	0.012	578	892	103
43	5.5	9	5.1	0.015	0.015	862	1370	182
51	5.5	9	5.1	0.015	0.015	980	1570	335
62	6.6	11	6.1	0.015	0.015	1570	2740	560
80	9	14	8.1	0.017	0.017	2160	4020	1175
94	9	14	8.1	0.017	0.017	3820	7940	1745
112	11	17	11.1	0.020	0.020	4700	9800	3220

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBFE-L法兰型
SBFE-L Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	t
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBFE8L	4	8	+0.009 -0.001	16	0 -0.013	45	-0.3	32	5
SBFE12L	4	12		22	0 -0.016	57		42	6
SBFE16L	5	16	+0.011 -0.001	26		70		46	6
SBFE20L	5	20		32	0 -0.019	80		54	8
SBFE25L	6	25	+0.013 -0.002	40		112		62	8
SBFE30L	6	30		47	0 -0.022	123		76	10
SBFE40L	6	40	+0.016 -0.004	62		154		98	13
SBFE50L	6	50		75	0 -0.025	192		112	13
SBFE60L	6	60		90		211		134	18

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

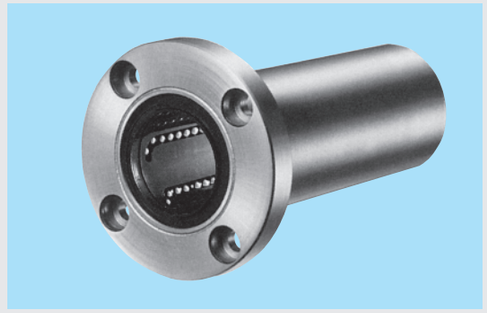
订购实例
Ordering example

SBFE 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货 Stock available

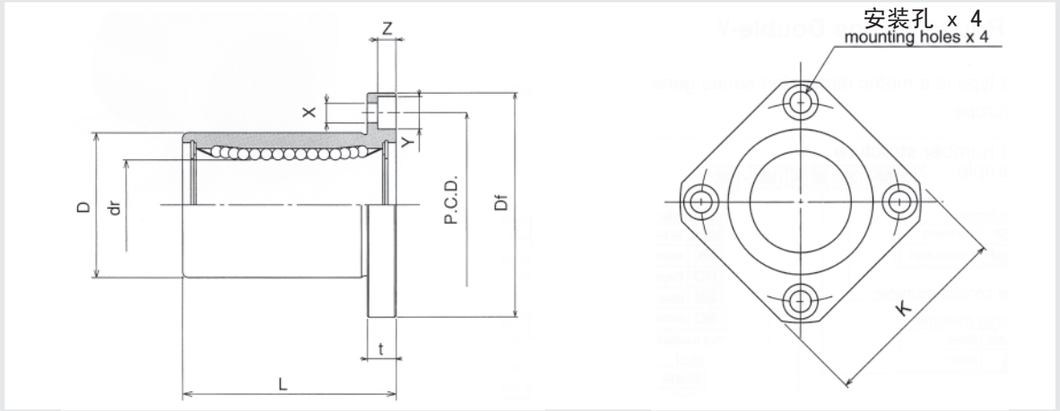
（ 单位Unit : mm）

PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
24	3.5	6.5	3.1	0.015	0.015	421	804	59
32	4.5	8	4.1	0.015	0.015	813	1570	110
36	4.5	8	4.1	0.015	0.015	921	1780	160
43	5.5	9.5	5.1	0.017	0.017	1370	2740	260
51	5.5	9.5	5.1	0.017	0.017	1570	3140	540
62	6.6	11	6.1	0.017	0.017	2500	5490	815
80	9	14	8.1	0.020	0.020	3430	8040	1805
94	9	14	8.1	0.020	0.020	6080	15900	2820
112	11	17.5	11.1	0.025	0.025	7550	20000	4920

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBKE法兰型
SBKE Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	K
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBKE8	4	8	+0.008 0	16	0 -0.013	25	±0.3	32	25
SBKE12	4	12		22	0 -0.016	32		42	32
SBKE16	5	16	+0.009 -0.001	26		36		46	35
SBKE20	5	20		32	0 -0.019	45		54	42
SBKE25	6	25	+0.011 -0.001	40		58		62	50
SBKE30	6	30		47		68		76	60
SBKE40	6	40	+0.013 -0.002	62	0 -0.022	80		98	75
SBKE50	6	50		75		100		112	88
SBKE60	6	60		90	0 -0.025	125		134	106

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

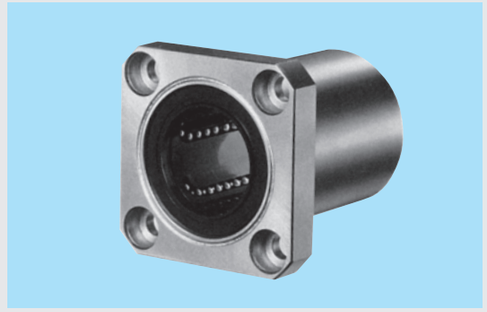
订购实例
Ordering example

SBKE 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



• 公制尺寸（欧洲型）Metric dimension (Europe type)
• 现货 Stock available

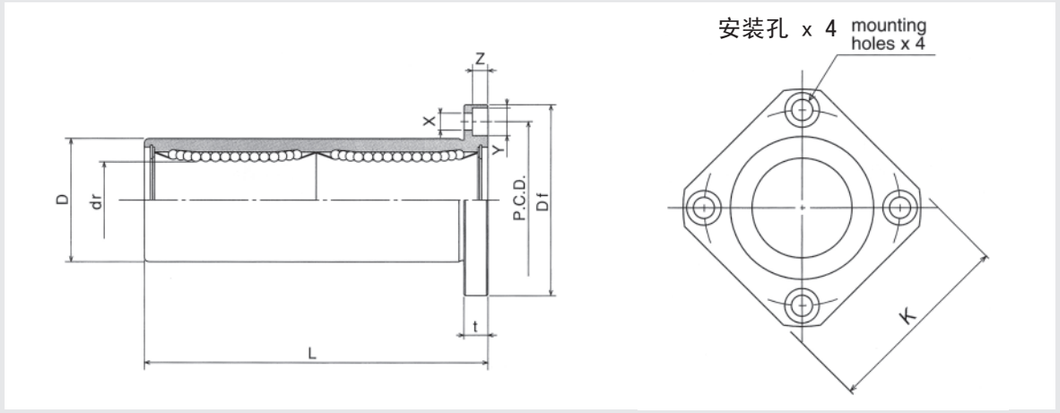
（ 单位Unit : mm)

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
5	24	3.5	6	3.1	0.012	0.012	265	402	41
6	32	4.5	7.5	4.1	0.012	0.012	510	784	80
6	36	4.5	7.5	4.1	0.012	0.012	578	892	103
8	43	5.5	9	5.1	0.015	0.015	862	1370	182
8	51	5.5	9	5.1	0.015	0.015	980	1570	335
10	62	6.6	11	6.1	0.015	0.015	1570	2740	560
13	80	9	14	8.1	0.017	0.017	2160	4020	1175
13	94	9	14	8.1	0.017	0.017	3820	7940	1745
18	112	11	17	11.1	0.020	0.020	4700	9800	3220

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBKE-L法兰型
SBKE-L Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		Df	K
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBKE8L	4	8	+0.009 -0.001	16	0 -0.013	45	-0.3	32	25
SBKE12L	4	12		22	0 -0.016	57		42	32
SBKE16L	5	16	+0.011 -0.001	26		70		46	35
SBKE20L	5	20		32	0 -0.019	80		54	42
SBKE25L	6	25	+0.013 -0.002	40		112		62	50
SBKE30L	6	30		47		123		76	60
SBKE40L	6	40	+0.016 -0.004	62	0 -0.022	154		98	75
SBKE50L	6	50		75		192		112	88
SBKE60L	6	60		90	0 -0.025	211		134	106

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

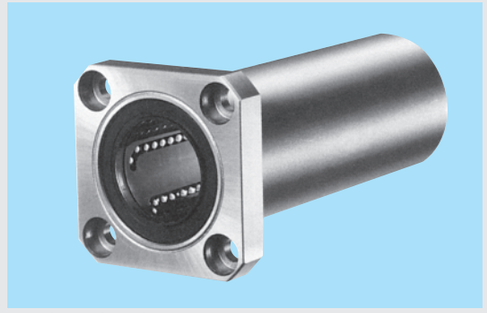
订购实例
Ordering example

SBKE 25L UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



• 公制尺寸（欧洲型）Metric dimension (Europe type)
• 现货 Stock available

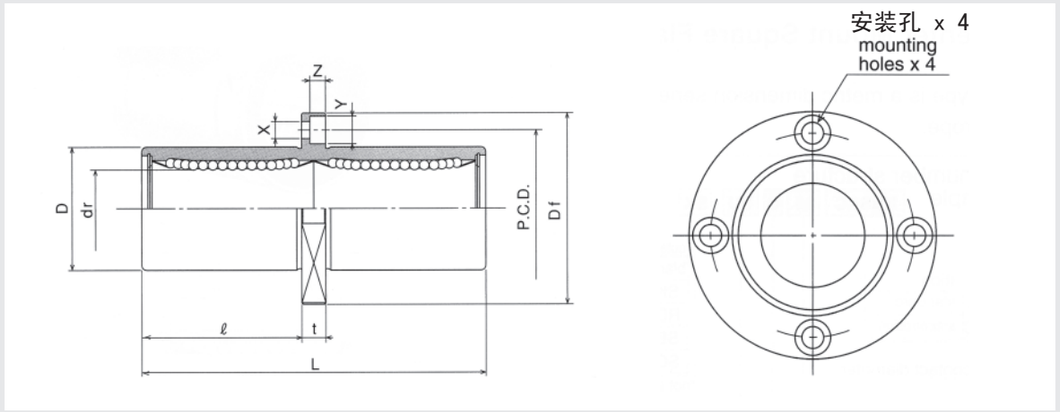
（ 单位Unit : mm)

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
5	24	3.5	6.5	3.1	0.015	0.015	421	804	51
6	32	4.5	8	4.1	0.015	0.015	813	1570	90
6	36	4.5	8	4.1	0.015	0.015	921	1780	135
8	43	5.5	9.5	5.1	0.017	0.017	1370	2740	225
8	51	5.5	9.5	5.1	0.017	0.017	1570	3140	500
10	62	6.6	11	6.1	0.017	0.017	2500	5490	720
13	80	9	14	8.1	0.020	0.020	3430	8040	1600
13	94	9	14	8.1	0.020	0.020	6080	15900	2620
18	112	11	17.5	11.1	0.025	0.025	7550	20000	4480

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBFCE法兰型
SBFCE Flange type



订购实例
Ordering example

SBFCE 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard),
NM(Nickel plating)



- 公制尺寸（欧洲型）
  Metric dimension (Europe type)
- 订单生产（请联系SBC公司）
  Order made (Please contact SBC)

（单位 Unit : mm）

型号 Model number	滚珠回路数 Number of ball circuits	dr	容许公差 Permissible tolerance	D	容许公差 Permissible tolerance	L	容许公差 Permissible tolerance	ℓ	Df
SBFCE16UU	5	16	+0.011 -0.001	26	0 -0.016	68	±0.3	31	46
SBFCE20UU	5	20		32	0 -0.019	80		36	54
SBFCE25UU	6	25	+0.013 -0.002	40		112		52	62
SBFCE30UU	6	30		47		123		56.5	76

t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
6	36	4.5	8	4.1	0.015	0.015	921	1780	160
8	43	5.5	9.5	5.1	0.017	0.017	1370	2740	260
8	51	5.5	9.5	5.1	0.017	0.017	1570	3140	540
10	62	6.6	11	6.1	0.017	0.017	2500	5490	815

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

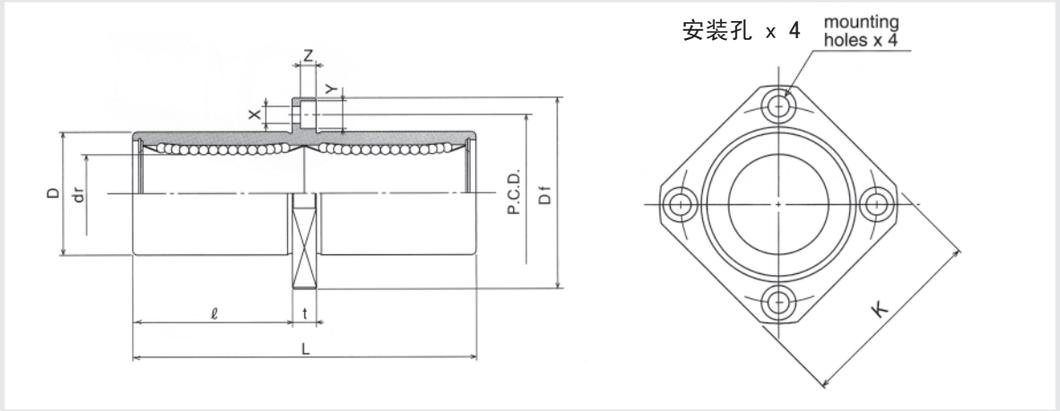
❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SBKCE法兰型
SBKCE Flange type



型号 Model number	滚珠回路数 Number of ball circuits	dr		D		L		ℓ	Df
			容许公差 Permissible tolerance		容许公差 Permissible tolerance		容许公差 Permissible tolerance		
SBKCE16UU	5	16	+0.011 -0.001	26	0 -0.016	68	±0.3	31	46
SBKCE20UU	5	20		32		80		36	54
SBKCE25UU	6	25	+0.013 -0.002	40	0 -0.019	112		52	62
SBKCE30UU	6	30		47		123		56.5	76

❶ E : 偏心度（最大）
Eccentricity (Max)

❷ S : 垂直度
Squarness

❸ C : 基本额定动载荷
Basic dynamic load rating

❹ Co : 基本额定静载荷
Basic static load rating

❺ M : 质量
Mass

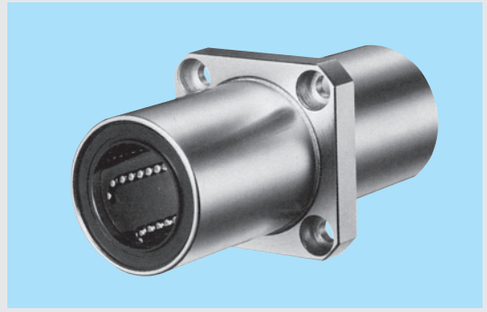
订购实例
Ordering example

SBKCE 25 UU – NM
[1] [2] [3]

[1] 型号
Model number

[2] 密封：UU（两侧密封）
Seal : UU(Seals on bothside)

[3] 表面处理：无符号（标准），NM（镀镍）
Surface treatment : No symbol(Standard), NM(Nickel plating)



- 公制尺寸（欧洲型）
  Metric dimension (Europe type)
- 订单生产（请联系SBC公司）
  Order made (Please contact SBC)

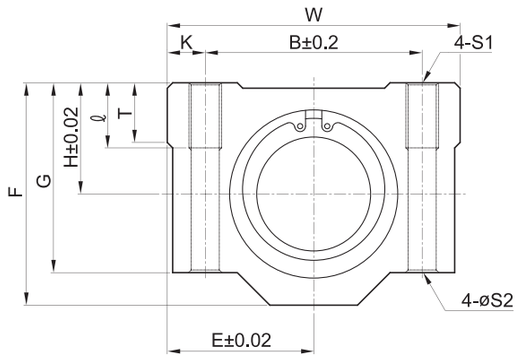
（ 单位Unit : mm）

K	t	PCD	X	Y	Z	E	S	C [N]	Co [N]	M [g]
35	6	36	4.5	8	4.1	0.015	0.015	921	1780	160
42	8	43	5.5	9.5	5.1	0.017	0.017	1370	2740	260
50	8	51	5.5	9.5	5.1	0.017	0.017	1570	3140	540
60	10	62	6.6	11	6.1	0.017	0.017	2500	5490	815

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SCE型滚珠轴承
SCE ball bush housing



订购实例
Ordering example

SCE 25 UU
[1] [2]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货Stock available

（单位Unit : mm)

型号 Model number	H	E	W	L	F	G	T
SCE 12	15	21	42	36	28	24	8
SCE 16	19	25	50	44	38.5	32.5	9
SCE 20	21	27	54	53	41	35	11
SCE 25	26	38	76	67	51.5	42	12
SCE 30	30	39	78	76	59.5	49	15
SCE 40	40	51	102	90	78	62	20

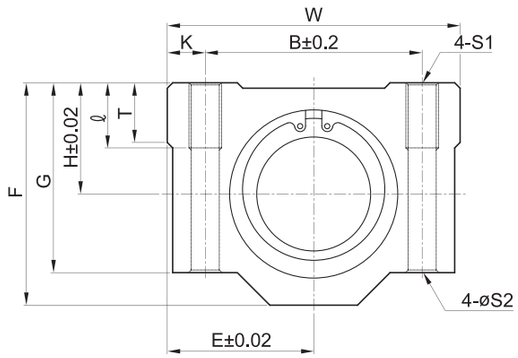
B	C	K	S1	S2	ℓ	C [N]	Co [N]
30.5	26	5.75	M5	4.3	12	510	780
36	34	7	M5	4.3	12	770	1180
40	40	7	M6	5.2	12	880	1350
54	50	11	M8	7	18	980	1550
58	58	10	M8	7	18	1570	2700
80	60	11	M10	8.7	25	2160	4020

❶ C : 基本额定动载荷
Basic dynamic load rating
❷ Co : 基本额定静载荷
Basic static load rating

直线轴承
Linear Bushings

欧洲型滚珠轴承
Europe type Ball Bushing

SCE-L型滚珠轴承
SCE-L ball bush housing



订购实例
Ordering example

SCE 25L UU
[1] [2]

[1] 型号
Model number

[2] 密封：无符号（无密封），UU（两侧密封）
Seal : No symbol(Without seal),
UU(Seals on bothside)



- 公制尺寸（欧洲型）Metric dimension (Europe type)
- 现货Stock available

（单位Unit : mm)

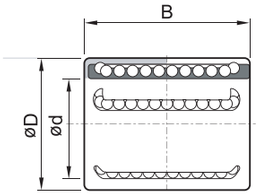
型号 Model number	H	E	W	L	F	G	T
SCE 12L	15	21	42	70	28	24	8
SCE 16L	19	25	50	85	38.5	32.5	9
SCE 20L	21	27	54	102	41	35	11
SCE 25L	26	38	76	130	51.5	42	12
SCE 30L	30	39	78	140	59.5	49	15
SCE 40L	40	51	102	175	78	62	20

B	C	K	S1	S2	ℓ	C [N]	Co [N]
30.5	50	5.75	M5	4.3	12	813	1570
36	60	7	M5	4.3	12	1230	2350
40	70	7	M6	5.2	12	1400	2740
54	100	11	M8	7	18	1560	3140
58	110	10	M8	7	18	2490	5490
80	140	11	M10	8.7	25	3430	8040

❶ C : 基本额定动载荷
Basic dynamic load rating
❷ Co : 基本额定静载荷
Basic static load rating

紧凑型滚珠轴承
Compact type Ball Bushing

紧凑型/合成树脂保持架
Compact size / Synthetic resin retainer





订购实例
Ordering example

KH 0622 – PP
[1] [2]

[1] 型号
Model number

[2]密封：无符号（无密封），P（一端密封），PP（两侧密封）
Seal : No symbol(Without seal), P(Seal one end), PP(Seals on bothside)

（单位Unit : mm）

型号 Model number	Ød	ØD	B	C [N]	Co [N]	M [g]
KH 0622	6	12	22	400	239	7
KH 0824	8	15	24	435	280	12
KH 1026	10	17	26	500	370	14.5
KH 1228	12	19	28	620	510	18.5
KH 1428	14	21	28	620	520	20.5
KH 1630	16	24	30	800	620	27.5
KH 2030	20	28	30	950	790	32.5
KH 2540	25	35	40	1990	1670	66
KH 3050	30	40	50	2800	2700	95
KH 4060	40	52	60	4400	4450	182
KH 5070	50	62	70	5500	6300	252

❶ C : 基本额定动载荷
Basic dynamic load rating

❷ Co : 基本额定静载荷
Basic static load rating

❸ M : 质量
Mass

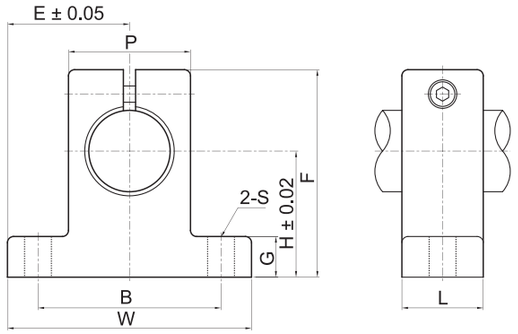
选项
Option

- 紧凑型
  Compact size
- 合成树脂保持架
  Synthetic resin retainer
- 轴支架
  Shaft support

直线轴承
Linear Bushings

选项
Option

SK型轴支架
SK shaft support

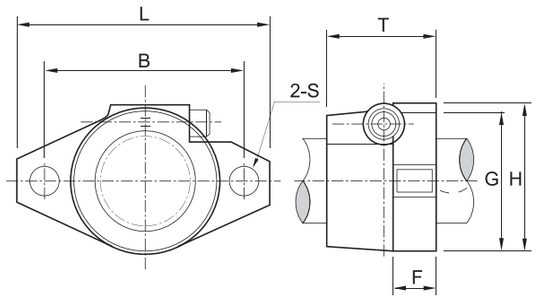




（ 单位Unit : mm)

参考 Reference	主要尺寸 Main dimension									紧固螺栓 Fixing bolt	装配螺栓 Mounting bolt
	H	E	W	L	F	G	P	B	S		
SK8	20	21	42	14	32.8	6	18	32	5.5	M4	M5
SK10	20	21	42	14	32.8	6	18	32	5.5	M4	M5
SK12	23	21	42	14	37.5	6	20	32	5.5	M4	M5
SK13	23	21	42	14	37.5	6	20	32	5.5	M4	M5
SK16	27	24	48	16	44	8	25	38	5.5	M4	M5
SK20	31	30	60	20	51	10	30	45	6.6	M5	M6
SK25	35	35	70	24	60	12	38	56	6.6	M6	M6
SK30	42	42	84	28	70	12	44	64	9	M6	M8
SK35	50	49	98	32	82	15	50	74	11	M8	M10
SK40	60	57	114	36	96	15	60	90	11	M8	M10

SHF型轴支架
SHF shaft support





（ 单位Unit : mm)

参考 Reference	主要尺寸 Main dimension									重量 Weight g
	L	T	F	B	G	H	S	紧固螺栓 Fixing bolt	装配螺栓 Mounting bolt	
SHF10	43	10	5	32	20	24	5.5	M5	M4	13
SHF12	47	13	7	36	25	28	5.5	M5	M4	20
SHF13	47	13	7	36	25	28	5.5	M5	M4	20
SHF16	50	16	8	40	28	31	5.5	M5	M4	27
SHF20	60	20	8	48	34	37	7	M6	M5	40
SHF25	70	25	10	56	40	42	7	M6	M5	60
SHF30	80	30	12	64	46	50	9	M8	M6	110
SHF35	92	35	14	72	50	58	12	M10	M8	140
SHF40	102	40	16	80	56	67	12	M10	M10	205

交叉滚子导轨
Cross Roller Guide

技术数据/SCVR型交叉滚子导轨/
SCVRT型、SCVRU型交叉滚子工作台

Technical Data / Cross Roller Guide SCVR Type /
Cross Roller Table SCVRT Type, SCVRU Type

交叉滚子导轨
Cross Roller Guide

技术数据
Technical Data

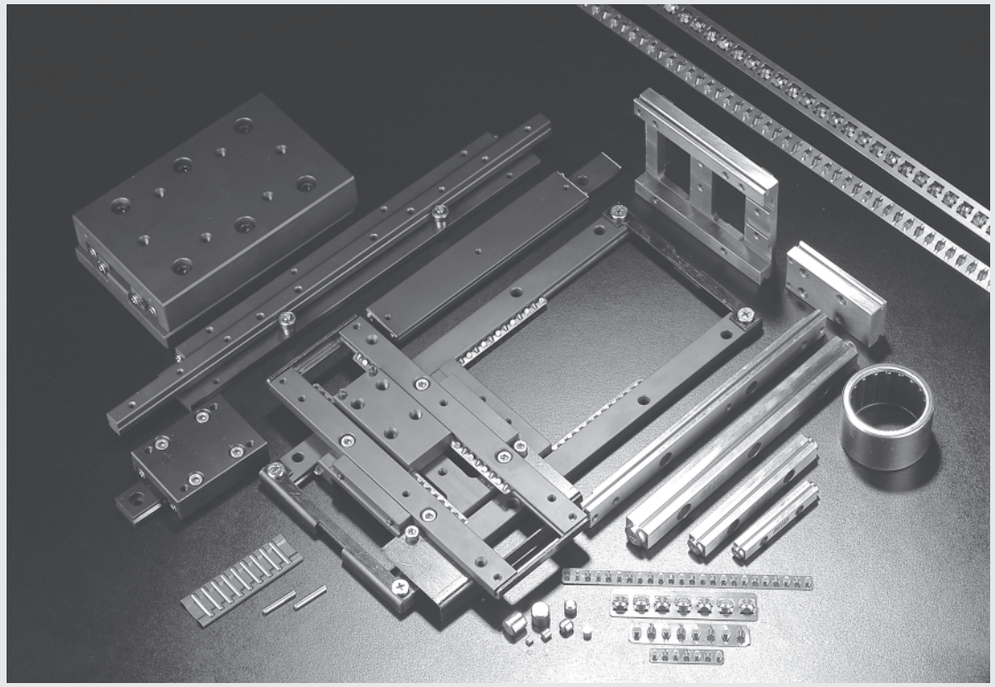
交叉滚子导轨
CROSS ROLLER GUIDE

SBC出品的交叉滚子导轨是一种在两列具有V形沟槽的专用轨道之间装有滚子保持架的机械轴承系统。由于其内部的滚子相互垂直组合，所以它们能承受所有方向的载荷，从而能形成一种刚度高、精度一流、结构紧凑的直线运动导轨。

交叉滚子导轨通常用于：测量仪器、光学仪器以及其他需要高精度直线运动的仪器。

SBC cross roller guides are mechanical bearings where a roller cage is assembled between two rails with “V” grooved raceway. Since the rollers are incorporated at right angles to each other, they can carry loads in all directions to create a highly rigid, high precision, compact linear motion guide.

The cross roller guide is commonly used in : Measuring and Optical instruments and other applications requiring high precision linear motion.



[SBC交叉滚子产品]
[SBC Cross roller products]

- 交叉滚子导轨：SCVR型
  由四个轨道和两个保持架组成。
  CROSS ROLLER GUIDE : SCVR
  A combination of four rails and two cages.

- 交叉滚子工作台：SCVRT、SCVRU型
  采用交叉滚子导轨进行精确运动的工作台。
  CROSS ROLLER TABLE : SCVRT, SCVRU
  A stage using cross roller guides for precision motion.

基本额定动载荷
Basic dynamic load rating

基本额定动载荷是载荷方向和载荷量恒定时，在相同条件下运行的一组相同的交叉滚子导轨持续至少100Km行程的导轨负载能力。

The basic dynamic load rating is the guide’s load capacity with a constant direction and constant magnitude load where a group of identical cross roller guides operating under the same conditions will last for at least 100Km of travel.

[基本额定动载荷符号Basic dynamic load rating symbol]

SCVR（交叉滚子导轨）SCVR (Cross roller guide) : Cz (kN)
SCVRT、SCVRU（交叉滚子工作台）SCVRT, SCVRU (Cross roller table) : C (kN)

基本额定静载荷 Basic static load rating

基本额定静载荷是载荷方向和载荷量恒定时，滚子与滚动面的总永久变形等于滚子直径0. 0001倍时的导轨负载能力。

The basic static load rating is the guide’s load capacity with a constant direction and constant magnitude load where the total permanent deformation of roller and raceway equals 0.0001 times the roller diameter.

[基本额定静载荷符号Basic static load rating symbol]

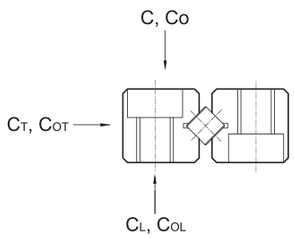
SCVR（交叉滚子导轨）SCVR (Cross roller guide) : Coz (kN)
SCVRT、SCVRU（交叉滚子工作台）SCVRT, SCVRU(Cross roller table) : Co (kN)

所有方向的额定载荷 Rated loads in all directions

[SCVR（交叉滚子导轨）额定载荷 SCVR(Cross roller guide) rated load]

表内是每个滚子的额定动载荷与额定静载荷。要计算轴承座的负载能力，可使用下列公式。

The dynamic load rating and static load rating in the tables is per roller. To calculate the load capacity for the bearing set, use the equation below.



$$C_O = C_L = \left(\frac{Z}{2}\right)^{\frac{3}{4}} \times C_Z,\ C_T = 2C$$

$$C_O = C_{OL} = \left(\frac{Z}{2}\right)^{\frac{3}{4}} \times C_{OZ},\ C_{OT} = 2C_O$$

$\left(\frac{Z}{2}\right)$ 删除小数点后的数值 Delete below the decimal point.)

[SCVRT、SCVRU（交叉滚子工作台）的额定载荷 SCVRT, SCVRU(Cross roller table) rated load]

SCVRT与SCVRU型的额定载荷在所有四个方向（径向、逆径向、横向）是相等的，它们的额定载荷值与规范表内的C与Co值相同。

The rated loads of models SCVRT and SCVRU are equal in all four directions (radial, reverse radial, lateral directions) and their rated load values are same as C and Co from the specification table.

交叉滚子导轨
Cross Roller Guide

技术数据
Technical Data

静安全系数 (fs)
Static Safety Factors (fs)

交叉滚子导轨产品在应用时，可能会承受意想不到的载荷。例如，进行往复运动的设备由于重心偏移和加速度的影响会产生力矩载荷。
When Cross roller guide products are used in applications, they may carry unexpected loads. For example, reciprocating machines typically create moment loads because of an offset center-of-gravity and the acceleration.

在选择适用的交叉滚子产品时，要考虑所有载荷。
When selecting the right cross roller guide products, consider all of the loads.

$$f_S = \frac{C_O}{P}$$ （径向载荷） (Radial Load)

$$f_S = \frac{M_O}{M}$$ （力矩载荷） (Moment Load)

- Co ： 基本额定动载荷 Basic dynamic load rating
- P ： 计算载荷 Calculated load
- Mo ： 容许静力矩 Static permissible moment (Mpo, Mro, Myo)
- M ： 载荷力矩 Loaded moment

（fs参考值）
(Reference value of fs)

运行条件 Operating conditions	负载条件 Load conditions	fs
偶尔运行 Occasional operating	小冲击 Small impact	1.0 ~ 1.3
	冲击或扭曲载荷 Impact or Twisting load	2.0 ~ 3.0
常规运行 Ordinary operating	正常载荷 Normal load	1.0 ~ 1.5
	冲击或扭曲载荷 Impact or Twisting load	2.5 ~ 7.0

行程寿命计算
Life Calculation

交叉滚子导轨的使用寿命期可通过下列公式计算。
The life calculation of a cross roller guide is calculated using the equation below.

[额定行程寿命]
[Nominal life]

$$L = \left(\frac{f_T}{f_W} \cdot \frac{C}{P} \right)^{\frac{10}{3}} X\ 100$$

- L (km) ： 额定行程寿命 Nominal life
- P (N) ： 计算载荷 Calculated load
- C (N) ： 基本额定动载荷 Basic dynamic load rating
- fT ： 温度系数 Temperature factor
- fw ： 载荷系数 Load factor

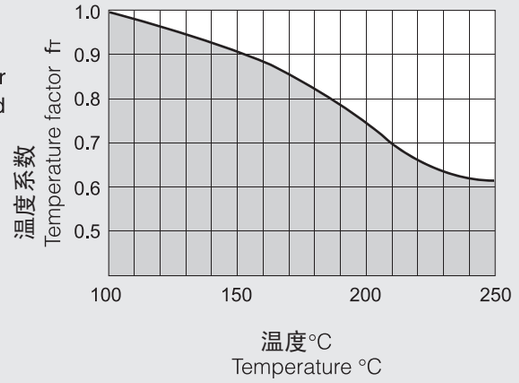
温度系数 (fT)
Temperature factor (fT)

如果环境温度超过100° C，必须根据右表减少负载能力。
If the temperature of the environment is over 100°C, the bearing capacity must be derated according to the chart.

应使用温度系数(fT)。
The temperature factor (fT) should be utilized.

※ 低于 80°C， T= 1.0
Under 80°C, fT= 1.0

※ 如超过80°C ， 请联系SBC公司。
Over 80°C, Contact SBC



载荷系数 (fw)
Load factor (fw)

往复运动的设备通常会产生难以精确计算的振动。请参照右表以补偿产生的振动。

Reciprocating machines typically create vibrations which are very difficult to calculate precisely. Please refer to the following table to compensate for these vibrations.

振动与冲击 Vibration and Impact	速度 (V) Velocity (V)	载荷系数 Load factor fw
极轻 Very slight	极慢 Very low V≦0.25m/s	1 ~ 1.2
轻 Slight	慢 Low 0.25＜V≦1.0m/s	1.2 ~ 1.5
适中 Moderate	中等 Medium 1.0＜V≦2.0m/s	1.5 ~ 2.0
强 Strong	快 High V＜2.0m/s	2.0 ~ 3.5

[计算使用寿命期]
[Calculating Service life time]

计算完额定行程寿命（Km）后，可使用行程和往复运动频率计算使用寿命期，公式如下。

After the nominal life in Km is calculated, the stroke and reciprocation frequency can be used to calculate the service life time using the equation below.

- L_h (h) ： 使用寿命期 Service life time
- L (km) ： 额定行程寿命 Nominal life
- ℓ_s (mm) ： 行程 Stroke
- n_1 (min^{-1}) ： 每分钟往复运动次数 Reciprocation cycles per minute

$$L_h = \frac{L \times 10^6}{2 \times \ell_s \times n_1 \times 60}$$

间隙与预载
Clearance and Preload

交叉滚子导轨的预载调节很简单，请参见产品目录中的预载调节部分。

It is easy to adjust the preload of a cross roller guide, please refer to preload adjustment section of the catalog.

精度 Accuracy

请参见具体型号的产品目录来了解具体精度。

Refer to the catalog page of the specific model number for the specified accuracy.

安装方法 Mounting method

请参见每种型号的产品目录。

Refer to the catalog pages of each model no.

润滑 Lubrication

请使用润滑脂正确润滑，以防止磨损和发热。

Prevent abrasion and generation of heat, please use grease to lubricate properly.

[润滑脂润滑]
[Grease lubrication]

❶使用润滑脂润滑前请先进行清洁
使用润滑脂润滑滚动面之前，必须先去除防锈油。润滑脂和防锈油混合会降低润滑脂的润滑效果。
Clean before lubricating with grease
Before lubricating the raceways with grease, the anti-rust oil must be removed. Mixing anti-rust oil and grease can reduce the effectiveness of the grease.

❷推荐润滑脂
锂基润滑脂
Recommended grease
Lithium-based grease.

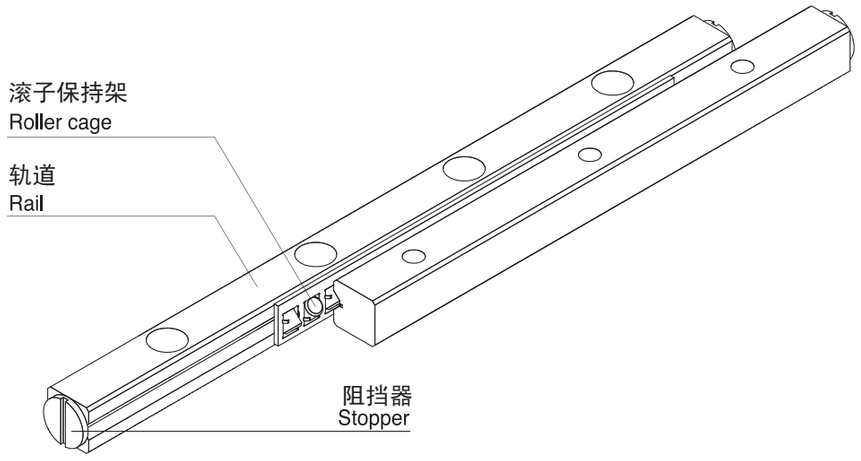
[润滑油润滑]
[Oil lubrication]

使用润滑油润滑前，不必去除防锈油。
建议使用ISO粘度等级为VG15~100的润滑油。
When lubricating with oil, the anti-rust oil does not need to be removed prior to lubrication.
We recommend to using lubricant: VG15~100, ISO Viscosity grades

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

结构与特性
Structure and Features



SCVR型是一种在两个具有V形槽的轨道之间安装了滚子保持架的直线导轨，由于内部的滚子相互垂直组合，所以它们能承载所有方向的载荷，从而能形成一种刚度高、精度一流、结构紧凑的直线运动导轨。

SCVR type is a liner guide where the ball cage is assembled to between the rails with “V” grooved raceway. Since the rollers are incorporated at right angles to each other, they can carry loads in all directions to form a highly rigid, high precision, compact linear motion guide.

[高刚度]
[High rigidity]

SBC型交叉滚子导轨无间隙，所以能轻易预载。由于滚子的接触长度和预载很长，所以它们的刚度更高。

SBC cross roller guides have no clearance and can be preloaded easily. They have high rigidity due to roller’s long contact length and preload.

[平稳运动]
[Smooth movement]

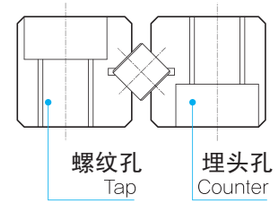
SBC型交叉滚子导轨具有高精度的滚动面，精密的滚子在滚子保持架内彼此间隔，从而能以极低的摩擦系数进行平稳运动。

SBC cross roller guides have high precision raceways, where precision rollers are spaced apart in a roller cage creating smooth movement with a low coefficient of friction.

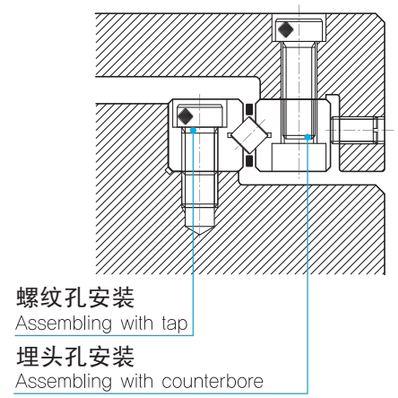
[安装容易]
[Easy mounting]

滚动面内的安装孔既是螺纹孔也是埋头孔，所以用户能沿两个方向安装导轨。

Since mounting holes in raceways are counter bored with tapped holes, it is possible to mount the guide in both directions.

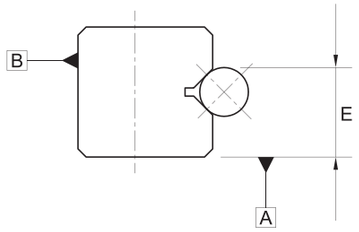


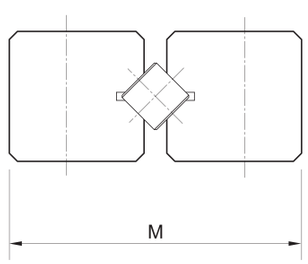
（专用轨道安装孔）
(Dedicated rail mounting hole)



（如何在专用轨道上安装螺栓）
(How to mount bolts on dedicated rails)

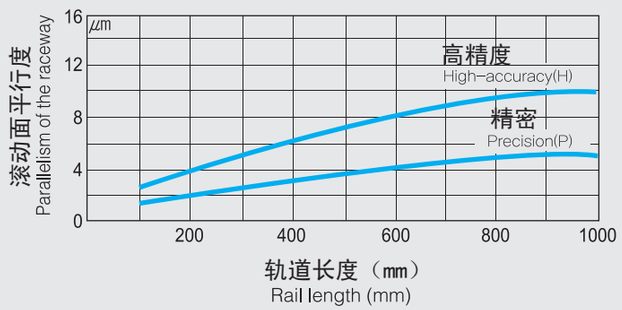
精度标准
Accuracy Standards



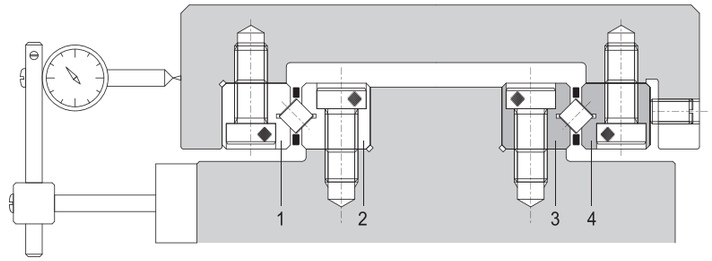


精度等级 **Accuracy grades**	H（高精度） **H (High-accuracy)**	P（精密） **P (Precision)**
与表面A与B相对的滚动面平行度 Parallelism of the raceway against Surfaces A and B	参见图表 See Graph	
以高度E标准的尺寸公差 Dimensional tolerance in height E	±0.02	±0.01
以高度E（*）表示的高度差 Difference in height E (*)	0.01	0.005
以宽度M表示的尺寸公差 Dimensional tolerance in width M	0 ~ -0.2	0 ~ -0.1

(*以高度E表示的高度差适用于在同一平面上使用的四条轨道。)
(*The difference in height E applies to four rails used on the same plane.)



安装方法
Mounting Method



❶ 将轨道2和3安装到底座上，将轨道1安装到工作台上。拧紧轨道安装螺栓，确保将轨道紧紧固定在安装面上。
Install the rails 2 and 3 to base and rail 1 to table. Tighten the rail-mounting bolts ensuring the rails are firmly against the mounting surfaces.

❷ 将轨道4暂时安装在工作台上。
（※ 在设计系统时，必须记住先装轨道然后再拧紧）。
Temporarily mount the rail 4 to the table.
(※ When designing the system, please remember that the rail must be mounted and tightened after assembly)

❸ 根据G-8安装底座和工作台并插入滚子保持架。如果保持架由于间隙原因无法安装，可先轻轻移动轨道4以产生更多间隙再插入保持架。
Set the base and table according to G-8 and insert the roller cages. If the cages will not fit due to clearance, move the rail 4 slightly to create more clearance and insert cages.

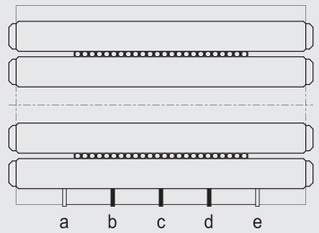
❹ 如G-8所示安装一个千分表。在缓慢地来回移动工作台时，安装所有预压螺栓直至没有间隙。
Set a dial gauge like G-8. While moving the table slowly back and forth, set all preloading bolts until there is no clearance.

❺ 在轨道末端安装阻挡器。
Install end stops in the ends of the rails.

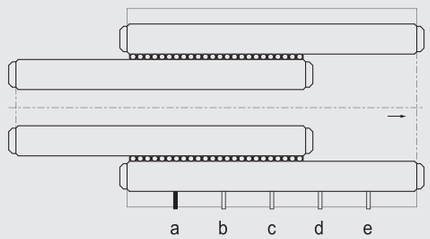
❻ 在移动工作台时，重设保持架的位置以取得所需的行程。
Reset the cage position to get required stroke while moving table.

❼ 如G-9所示，将滚子保持架固定在轨道中心。在滚子区域内，使用转矩扳手均匀拧紧预压螺栓b、c、d，直到千分表显示所需的数值。
（※千分表的数值与一个滚子的预载相同。）

Position roller cage in the center of the rail as in G-9. Tighten the preload bolts b, c, d evenly with a torque wrench within the area of roller until dial gauge shows desired value.
(※ The value of dial gauge is same as the preload of one roller.)



❽ 如G-9所示移动工作台，像拧紧调节螺栓b、c、d那样拧紧剩余的调节螺栓a、e。
Move table like G-9 and tighten the rest of the adjusting bolts a,e the same as adjusting bolts b,c,d.



[安装两个或多个单元]
[Assembling two or more units]

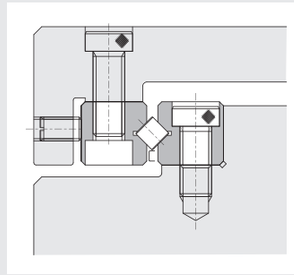
在安装两个或多个单元时，首先测量第一个单元的调节螺栓的拧紧转矩或其滑动阻力，然后安装第二个单元，这样它们的拧紧转矩或滑动阻力就与第一个单元的相等。照此方法安装可确保提供几乎一致的预载。

When mounting two or more units, first gauge the tightening torque of the adjustment bolts for the first unit or the sliding resistance of the first unit. And then, install the second unit so that their tightening torques or sliding resistances equal that of the first unit. In this method, almost the same preload can be provided.

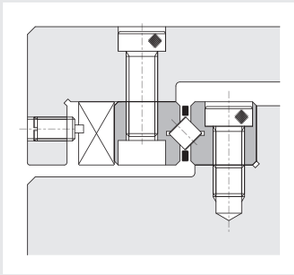
间隙调节
Clearance adjusting

设计预载方法以确保沿完整长度对轨道进行均匀预载。

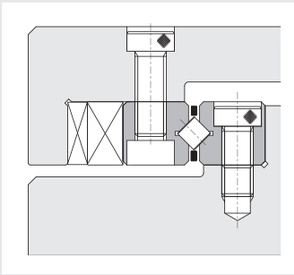
Design the preload method to uniformly preload the rail over the entire length.



❶ 标准
Normal



❷ 使用压板
Using pressing plate



❸ 使用锥形楔块
Using tapered gibs

❶ 标准 Normal : 使用定位螺钉推动轨道的一种最常用的预载方法。
Most common method of preloading using a setscrew to push the rail.

❷ 压板 Press plate : 当需要更高的精度和平滑度时应使用压板。
A press plate should be used when higher precision and smoothness is needed

❸ 锥形楔块 Tapered gibs : 当需要更高的刚度和精度时可使用锥形楔块。
Use tapered gibs when high rigidity and precision is needed.

预载 Preload

预载过度会导致凹陷（硬化）并缩短使用寿命。规范表中显示了滚子的容许预载值。在拧紧调节螺栓时，应观察滚子接触面的位移变化。

Too much preload may cause indentation (brinelling) and reduce the service life. The acceptable preload per roller is shown in the specification table. Tighten the adjustment bolts while watching the displacement of the roller contact area.

安装面的精度 Accuracy of the Mounting Surface

要获得更高的运动精度，需要确保安装面具有最佳的平行度和平直度。应该研磨安装面，使其精度至少与轨道精度相同（参见第10页），才能在轨道安装面上获得所需的平行度和平直度。

To acquire a high level of running accuracy a high level of parallelism and straightness is required in the mounting surfaces. The parallelism and flatness of the rail mounting surface should be completed by grinding to at least the same precision as the rail (See page no. ⓔ/10).

Additionally, the rails must be securely mounted up against the mounting surfaces.

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

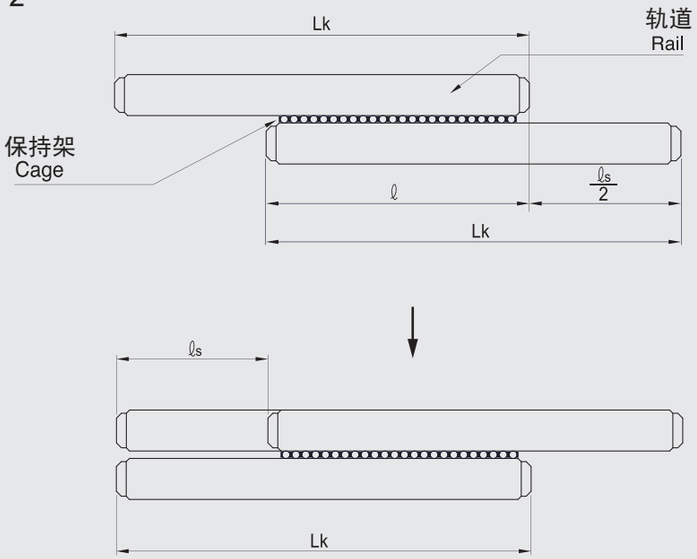
注意事项
Precautions

※ 在使用交叉滚子导轨时，请注意下列事项。
When using a cross roller guide, please follow these precautions.

[轨道长度]
[Rail length]

滚子保持架会沿同一方向移动工作台一半的行程。
The roller cage move the half the travel distance of the table in the same direction.
如果保持架的长度是 ，轨道长度（Lk）必须符合下列公式要求，以防保持架撞到轨道末端。
If the cage length is ℓs, the rail length (Lk) must match the following equation to prevent the cage from crashing into the end of the rail.

$$Lk \leq \ell + \frac{\ell s}{2}$$



[保持架蠕变]
[Cage Creep]

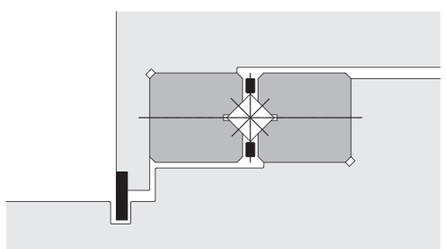
滚子保持架能精确移动，但由于振动、惯性或冲击的影响，有时也会偏离中心（保持架蠕变）。
The roller cage moves accurately but it may drift off center over time (cage creep) due to vibrations, inertia or impact.
请为工作台安装一个外部阻挡器。切勿依赖轨道末端阻挡器来控制行程。
Please mount an external stop for the table. Do not depend on the rail end stops to control the travel.

[轨道末端阻挡器]
[Rail End Stops]

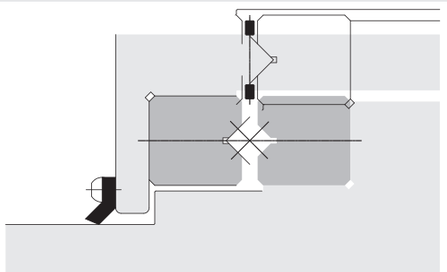
轨道末端阻挡器的作用是防止滚子保持架脱离轨道。轨道末端阻挡器要安装在轨道末端。
The purpose of Rail End Stops is to prevent the roller cage from coming outside of the rail. The rail end stops are attached to the end of the rails.
如果保持架频繁撞击轨道末端阻挡器，可能导致二者损坏或轨道末端阻挡器松动。
If the cages frequently bump into the rail end stops, they may become damaged or loosen the rail end stops.

[防尘]
[Protection against dust]

要防止灰尘或碎屑侵入交叉滚子内，可采取图G-13所示的侧面防尘法。对于导轨的其余部分，可考虑采用防尘罩或伸缩罩。
To prevent the cross roller guide from dust and debris, side dust protections as shown in figure G-13 are available. For the other part of guide, consider using bellows or telescopic cover.



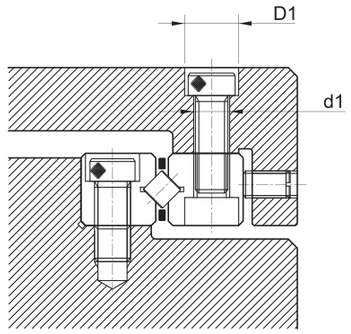
迷宫式侧盖
Labyrinth cover



接触式密封垫片
Wiper seal

设计安装螺栓
Design Mounting Bolt

应仔细设计螺栓（D1、d1）以确保调节预载。
The holes of the bolt(D1, d1) should be designed carefully for the preload adjustment.



交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

订购实例
Ordering Example

[交叉滚子导轨]
[Cross roller guide]

SCVR 2 P – 75 x 13Z – R
[1] [2] [3] [4] [5]

[1] 型号：SCVR1、2、3、4、6、9型
Model No. : SCVR 1, 2, 3, 4, 6, 9 type
[2] 精度等级：H（高精度）、P（精密）
Accuracy Grade : H(High), P(Precision)
[3] 轨道长度
Rail Length
[4] 滚子数量
Number of Rollers
[5] 表面处理：无符号（标准），R（表面处理）
Surface treatment : No Symbol (Standard), R (Surface treatment)

※ A 四个轨道和两个保持架组成。
A combination of four rails and two cages.
※ 在订购表面处理型时，请填写表面处理的符号。
When ordering surface treatment, please fill out Symbols for surface treatment.
❶ 标准（无符号）、黑色镀铬（低温镀黑铬）、氟碳化合物树脂涂层、硬镀铬
Standard (no treatment), Black Chrome coating (Raydent treatment), Fluorocarbon resin coating, Hard Chrome plating
❷ 如需特殊表面处理，请联系SBC公司。
Contact SBC for special surface treatment.

[滚子保持架]
[Roller Cage]

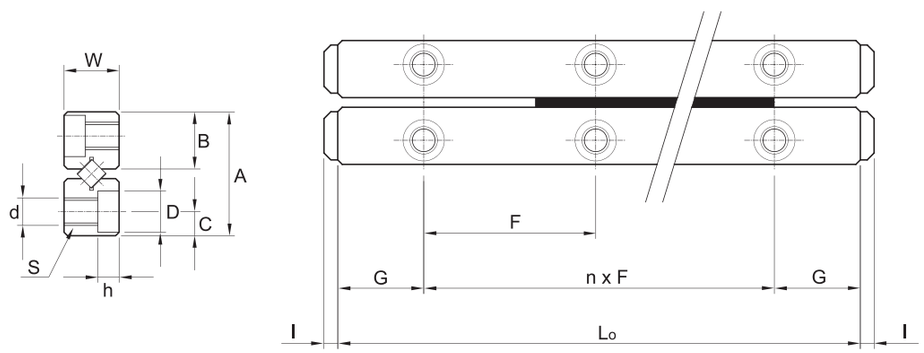
SCVR 2 x 13Z
[1] [2]

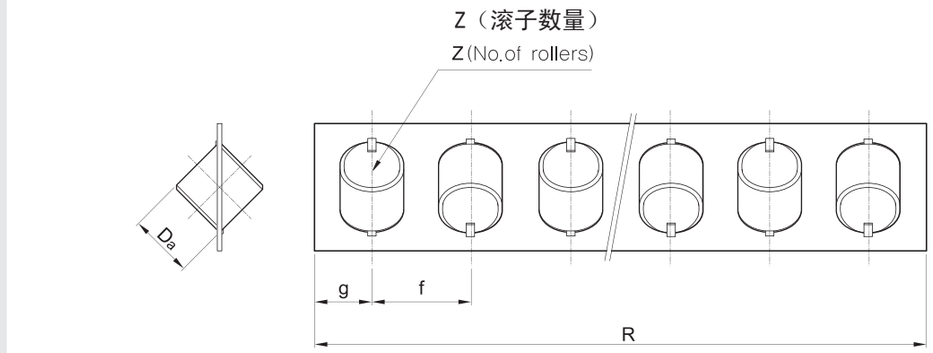
[1] 型号：SCVR1、2、3、4、6、9型
Model No. : SCVR 1, 2, 3, 4, 6, 9 type
[2] 滚子数量
Number of Rollers

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

SCVR1型
SCVR1 Type





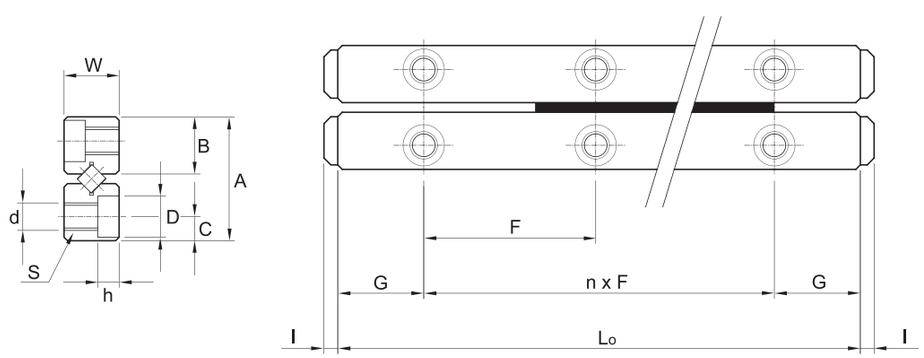
（单位 Unit : mm）

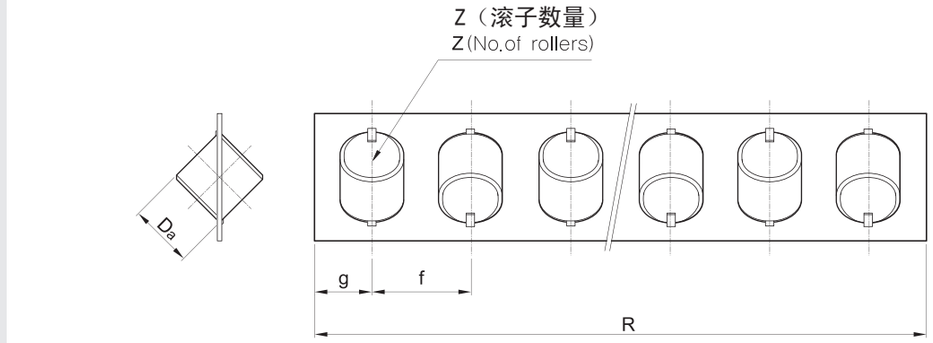
型号 Model No.	最大行程 Max Stroke	组合尺寸 Combined Dimensions			组装尺寸 Assembled Dimensions						组装尺寸 Assembled Dimensions			滚子保持架尺寸 Roller Cage Dimensions				滚子数量 No. of Rollers	容许预载 Permissible Preload	基本额定载荷（每个滚子） Basic Load Rating (per roller)		质量（轨道） Mass (Rail)
		A	W	Lo	nxF	G	B	C	S	d	D	h	I	Da	R	g	f	Z		Cz[kN]	Coz[kN]	[Kg/m]
SCVR1-20x5Z	12	8.5	4	20	1x10	5	3.9	1.8	M2	1.65	3	1.4	1.6	1.5	14	2	2.5	5	-0.002	0.098	0.069	0.11
SCVR1-30x7Z	22			30	2x10										19			7				
SCVR1-40x10Z	27			40	3x10										26.5			10				
SCVR1-50x13Z	32			50	4x10										34			13				
SCVR1-60x16Z	37			60	5x10										41.5			16				
SCVR1-70x19Z	42			70	6x10										49			19				
SCVR1-80x21Z	52			80	7x10										54			21				

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

SCVR2型
SCVR2 Type





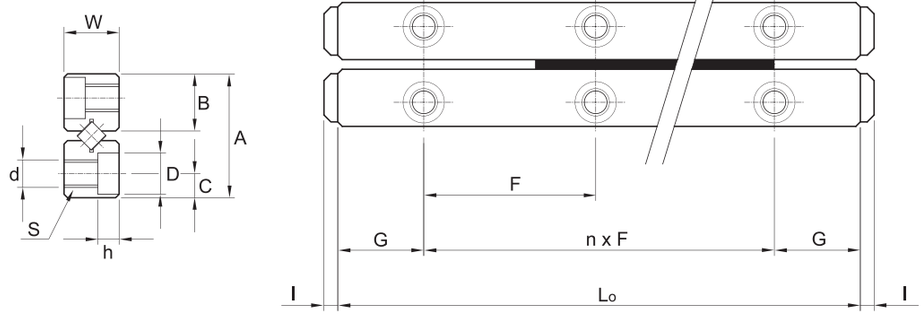
（单位 Unit : mm）

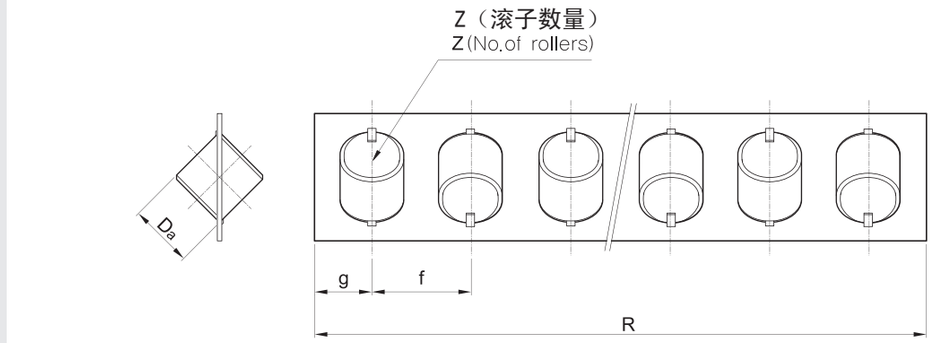
型号 Model No.	最大行程 Max Stroke	组合尺寸 Combined Dimensions			组装尺寸 Assembled Dimensions						组装尺寸 Assembled Dimensions			滚子保持架尺寸 Roller Cage Dimensions				滚子数量 No. of Rollers	容许预载 Permissible Preload	基本额定载荷（每个滚子） Basic Load Rating (per roller)		质量（轨道） Mass (Rail)
		A	W	Lo	nxF	G	B	C	S	d	D	h	I	Da	R	g	f	Z		Cz[kN]	Coz[kN]	[Kg/m]
SCVR2-30x5Z	18	12	6	30	1x15	7.5	5.6	2.5	M3	2.55	4.4	2	1.5	2	21	2.5	4	5	-0.003	0.176	0.127	0.23
SCVR2-45x8Z	24			45	2x15										33			8				
SCVR2-60x11Z	30			60	3x15										45			11				
SCVR2-75x13Z	44			75	4x15										53			13				
SCVR2-90x16Z	50			90	5x15										65			16				
SCVR2-105x18Z	64			105	6x15										73			18				
SCVR2-120x21Z	70			120	7x15										85			21				
SCVR2-135x23Z	84			135	8x15										93			23				
SCVR2-150x26Z	90			150	9x15										105			26				
SCVR2-165x29Z	96			165	10x15										117			29				
SCVR2-180x32Z	102			180	11x15										129			32				

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

SCVR3型
SCVR3 Type





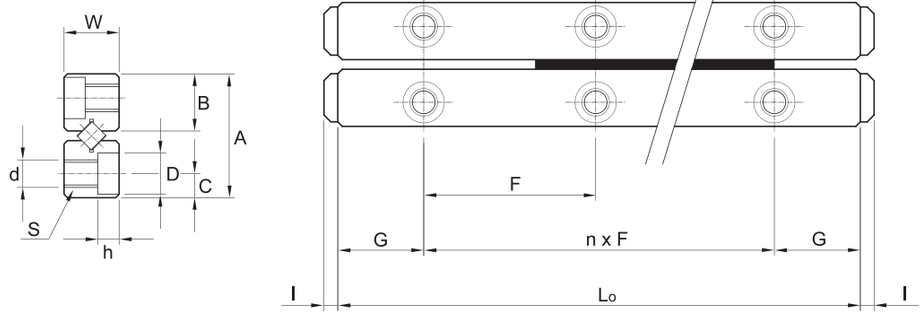
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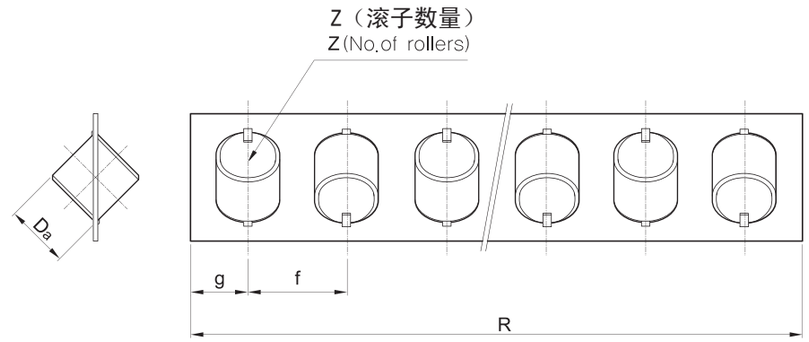
型号 Model No.	最大行程 Max Stroke	组合尺寸 Combined Dimensions			组装尺寸 Assembled Dimensions						组装尺寸 Assembled Dimensions			滚子保持架尺寸 Roller Cage Dimensions				滚子数量 No. of Rollers	容许预载 Permissible Preload	基本额定载荷（每个滚子） Basic Load Rating (per roller)		质量（轨道） Mass (Rail)
		A	W	Lo	nxF	G	B	C	S	d	D	h	I	Da	R	g	f	Z		Cz[kN]	Coz[kN]	[Kg/m]
SCVR3-50x7Z	28	18	8	50	1x25	12.5	8.3	3.5	M4	3.8	6	3.1	2	3	36	3	5	7	-0.004	0.363	0.275	0.45
SCVR3-75x10Z	48			75	2x25										51			10				
SCVR3-100x14Z	58			100	3x25										71			14				
SCVR3-125x17Z	78			125	4x25										86			17				
SCVR3-150x21Z	88			150	5x25										106			21				
SCVR3-175x24Z	108			175	6x25										121			24				
SCVR3-200x28Z	118			200	7x25										141			28				
SCVR3-225x31Z	138			225	8x25										156			31				
SCVR3-250x35Z	148			250	9x25										176			35				
SCVR3-275x38Z	168			275	10x25										191			38				
SCVR3-300x42Z	178			300	11x25										211			42				

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

SCVR4型
SCVR4 Type





（单位 Unit : mm）

型号 Model No.	最大行程 Max Stroke	组合尺寸 Combined Dimensions			组装尺寸 Assembled Dimensions					
		A	W	Lo	nxF	G	B	C	S	d
SCVR4-80x7Z	58	22	11	80	1x40	20	10.2	4.5	M5	4.3
SCVR4-120x11Z	82			120	2x40					
SCVR4-160x15Z	106			160	3x40					
SCVR4-200x19Z	130			200	4x40					
SCVR4-240x23Z	154			240	5x40					
SCVR4-280x27Z	178			280	6x40					
SCVR4-320x31Z	202			320	7x40					
SCVR4-360x35Z	226			360	8x40					
SCVR4-400x39Z	250			400	9x40					
SCVR4-440x43Z	274			400	10x40					
SCVR4-480x47Z	298			480	11x40					

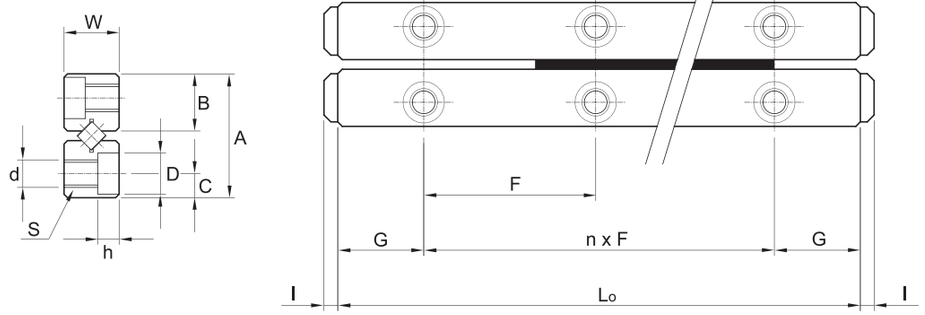
（单位 Unit : mm）

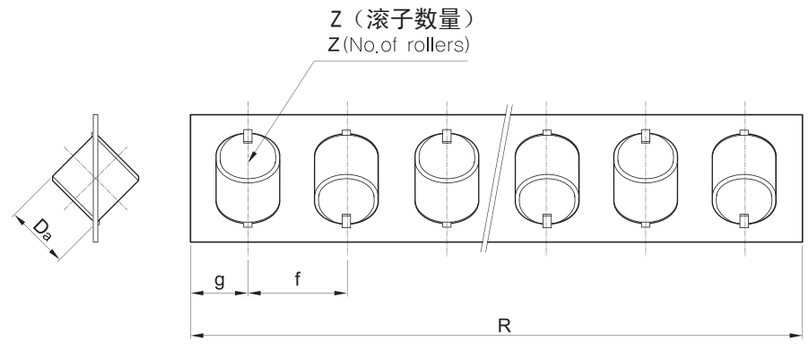
组装尺寸 Assembled Dimensions			滚子保持架尺寸 Roller Cage Dimensions				滚子数量 No. of Rollers	容许预载 Permissible Preload	基本额定载荷（每个滚子） Basic Load Rating (per roller)		质量（轨道） Mass (Rail)
D	h	I	Da	R	g	f	Z		Cz[kN]	Coz[kN]	[Kg/m]
8	4.2	2	4	51	4.5	7	7	-0.005	0.764	0.637	0.8
				79			11				
				107			15				
				135			19				
				163			23				
				191			27				
				219			31				
				247			35				
				275			39				
				303			43				
				331			47				

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

SCVR6型
SCVR6 Type





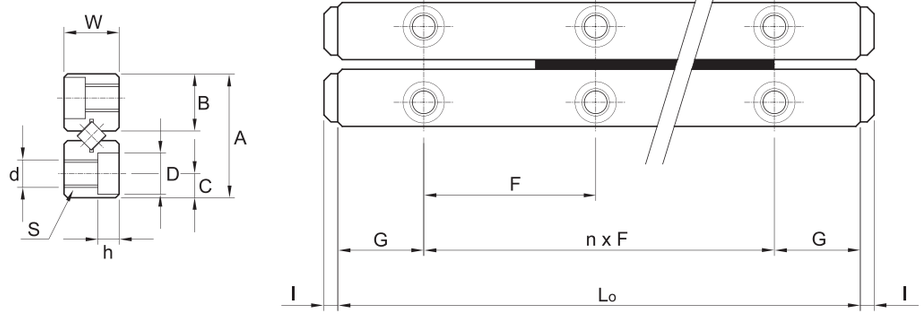
（单位 Unit : mm）

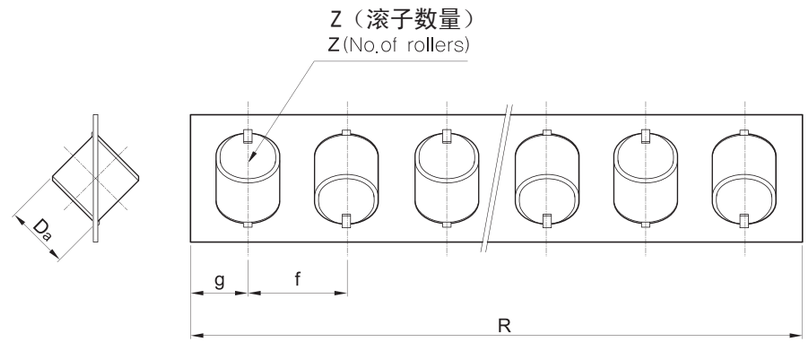
型号 Model No.	最大行程 Max Stroke	组合尺寸 Combined Dimensions			组装尺寸 Assembled Dimensions						组装尺寸 Assembled Dimensions			滚子保持架尺寸 Roller Cage Dimensions				滚子数量 No. of Rollers	容许预载 Permissible Preload	基本额定载荷（每个滚子） Basic Load Rating (per roller)		质量（轨道） Mass (Rail)
		A	W	Lo	nxF	G	B	C	S	d	D	h	I	Da	R	g	f	Z		Cz[kN]	Coz[kN]	[Kg/m]
SCVR6-100x7Z	56	30	15	100	1x50	25	14.4	6	M6	5.2	9.5	5.2	3.2	6	72	6	10	7	-0.007	1.91	1.76	1.5
SCVR6-150x10Z	96			150	2x50										102			10				
SCVR6-200x13Z	136			200	3x50										132			13				
SCVR6-250x17Z	156			250	4x50										172			17				
SCVR6-300x20Z	196			300	5x50										202			20				
SCVR6-350x24Z	216			350	6x50										242			24				
SCVR6-400x27Z	256			400	7x50										272			27				
SCVR6-450x31Z	276			450	8x50										312			31				
SCVR6-500x34Z	316			500	9x50										342			34				
SCVR6-550x38Z	336			550	10x50										382			38				
SCVR6-600x41Z	376			600	11x50										412			41				

交叉滚子导轨
Cross Roller Guide

SCVR型交叉滚子导轨
Cross Roller Guide SCVR Type

SCVR9型
SCVR9 Type

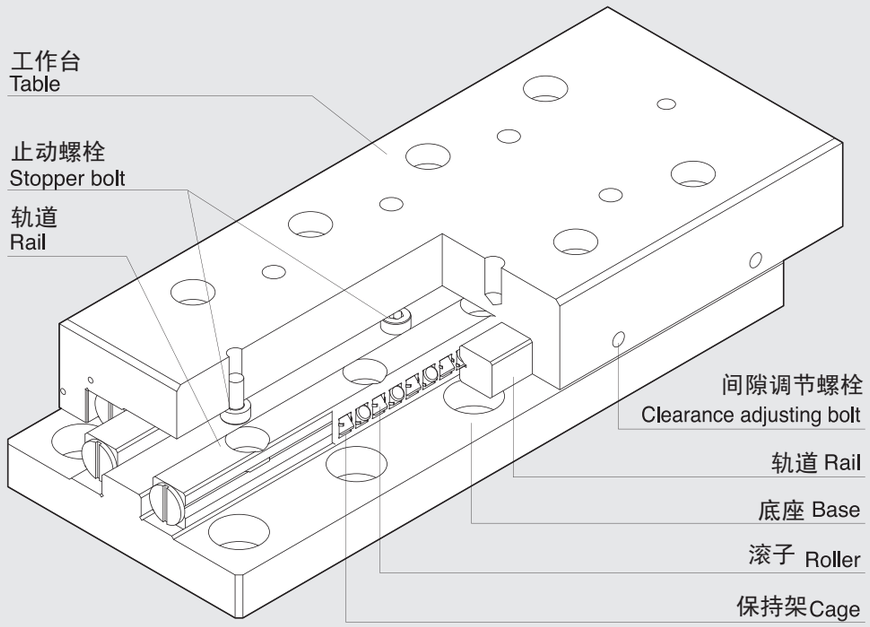




（单位 Unit : mm）

型号 Model No.	最大行程 Max Stroke	组合尺寸 Combined Dimensions			组装尺寸 Assembled Dimensions						组装尺寸 Assembled Dimensions			滚子保持架尺寸 Roller Cage Dimensions				滚子数量 No. of Rollers	容许预载 Permissible Preload	基本额定载荷（每个滚子） Basic Load Rating (per roller)		质量（轨道） Mass (Rail)
		A	W	Lo	nxF	G	B	C	S	d	D	h	I	Da	R	g	f	Z		Cz[kN]	Coz[kN]	[Kg/m]
SCVR9-200x10Z	118	40	20	200	1x100	50	19.2	8	M8	6.8	10.5	6.2	4	9	141	7.5	14	10	-0.010	4.31	4.36	3.2
SCVR9-300x15Z	178			300	2x100										211			15				
SCVR9-400x20Z	138			400	3x100										281			20				
SCVR9-500x25Z	298			500	4x100										351			25				
SCVR9-600x30Z	358			600	5x100										421			30				
SCVR9-700x35Z	418			700	6x100										491			35				
SCVR9-800x40Z	478			800	7x100										561			40				
SCVR9-900x45Z	538			900	8x100										631			45				
SCVR9-1000x50Z	598			1000	9x100										701			50				
SCVR9-1100x55Z	658			1100	10x100										771			55				
SCVR9-1200x60Z	718			1200	11x100										841			60				

交叉滚子工作台
CROSS ROLLER TABLE



SBC出品的交叉滚子工作台是装有SBC交叉滚子导轨（SCVR型）的精密工作台。由于产生的弹性变形极小，因此该工作台能以高刚度进行平稳的直线运行。它能用于办公自动化设备、自动组装设备和光学测量仪器。

The SBC cross roller table is a precision table assembled with SBC cross guides (SCVR type). Since there is minimal elastic deformation the table achieves high rigidity and stable linear motion. The tables can be used for OA equipment, Automation-assembly machines and Optical measurement devices.

[交叉滚子工作台类型]
[Cross Roller Table Model Type]

- SCVRT型：微型（底座螺纹孔）
  SCVRT Type : Miniature Type (Base Tapped-hole)
- SCVRT-A型：微型（底座安装孔）
  SCVRT-A Type : Miniature Type (Base Mounting-hole)
- SCVRU型
  SCVRU Type

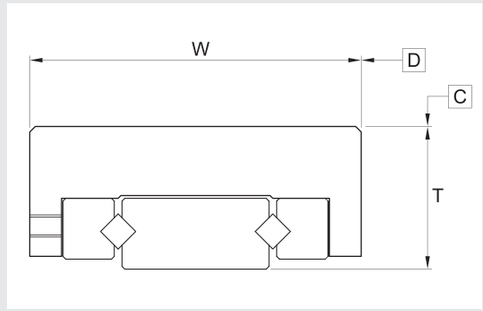
交叉滚子导轨
Cross Roller Guide

SCVRT/SCVRU型交叉滚子工作台
Cross Roller Table SCVRT Type, SCVRU Type

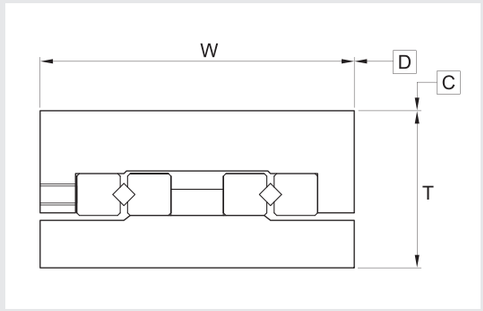
精度
Accuracy

用下图所示的千分表即可测量交叉滚子工作台的运行精度。尺寸表显示了台高C和D的公差。

The running accuracy of a cross roller table is measured with dial indicators as shown in Figure below. The tolerance of table height C and D are shown in the dimension tables.



（SCVRT/SCVRT-A型）
(SCVRT, SCVRT-A Type)



（SCVRU型）
(SCVRU Type)

注意事项 Precautions

[交叉滚子工作台型号]
[Cross Roller Table Model Type]

在对交叉滚子工作台的台面和底座进行深度加工时，必须注意下列事项。

When machining additional features into the Table and the Base of the Cross Roller Table, please observe the precautions below.

❶ 防止切割碎屑和异物进入交叉滚子导轨内。
Prevent cutting chips and foreign substance from entering the Cross Roller Guide.

❷ 将安装空设计成盲孔，而非穿透（通）孔。请联系SBC公司了解更多加工技术信息。
Design the mounting holes as blind holes, not penetrating (thru) holes. For additional machining, please contact SBC Linear.

❹ 交叉滚子工作台的预载已固定在适当水平。切勿调节预载调节螺栓。
The preload of the Cross Roller Table is fixed to the proper level. Please do not adjust the preload adjustment bolts.

[保持架蠕变]
[Cage Creep]

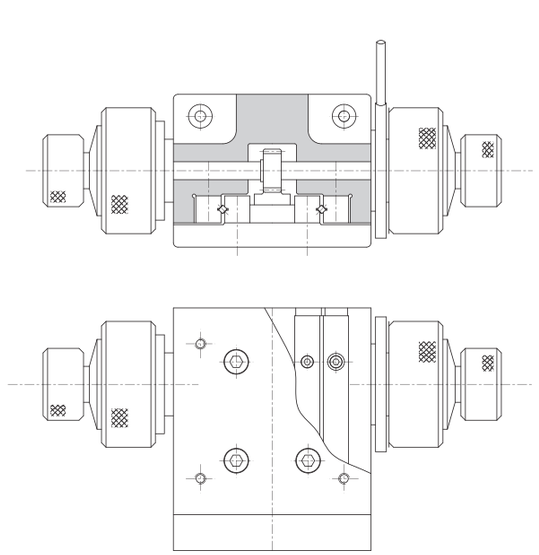
滚子保持架虽然能精确移动，但由于振动、惯性或冲击的影响有时也会出现偏移（保持架蠕变）。请在工作台上安装一个外部阻挡器以控制行程。

WheThe Roller Cage moves accurately but may be drift (cage creep) due to vibrations, inertia or impact. Please mount an external stop for the table to control the travel.

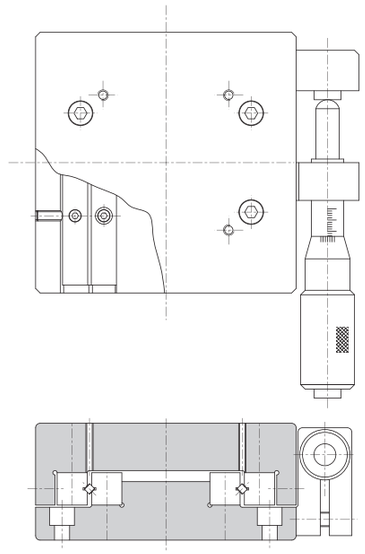
交叉滚子导轨
Cross Roller Guide

SCVRT/SCVRU型交叉滚子工作台
Cross Roller Table SCVRT Type, SCVRU Type

[实例]
[Example]



（齿条与小齿轮）
(Rack & Pinion)



（微型顶端）
(Micro head)

订购实例
Ordering Example

[SCVRT微型（底座螺纹孔）]
[SCVRT Miniature Type (Base Tapped-hole)]

SCVRT 2035 – T – R
[1] [2] [3]

[1] 型号：SCVRT（底座螺纹孔）
Model No. : SCVRT(Base Tapped-hole)
[2]工艺处理：无符号（标准）T（工艺处理）
Additional processing : No Symbol (Standard), T (Additional processing)
[3] 表面处理：无符号（标准）R（表面处理）
Surface Treatment : No symbol (Standard), R (Surface Treatment)

[SCVRT-A微型（底座]
[SCVRT-A Miniature Type (Base Mounting-hole)]

SCVRT 2035A – T – R
[1] [2] [3]

[1] 型号：SCVRT-A （底座安装孔）
Model No. : SCVRT-A (Base Mounting-hole)
[2] 工艺处理：无符号（标准）T（工艺处理）
Additional processing : No Symbol (Standard), T (Additional processing)
表面处理：无符号（标准）R（表面处理）
[3] Surface Treatment : No symbol (Standard), R (Surface Treatment)

[SCVRU]

SCVRU 2035 – T – R
[1] [2] [3]

[1] 型号：SCVRU
Model No. : SCVRU
[2] 工艺处理：无符号（标准）T（工艺处理）
Additional processing : No Symbol (Standard), T (Additional processing)
[3] 表面处理：无符号（标准）R（表面处理）
Surface Treatment : No symbol (Standard), R (Surface Treatment)

※ 在订购表面处理型时，请注明表面处理的符号。
When ordering surface treatment, please include the symbol of the surface treatment.

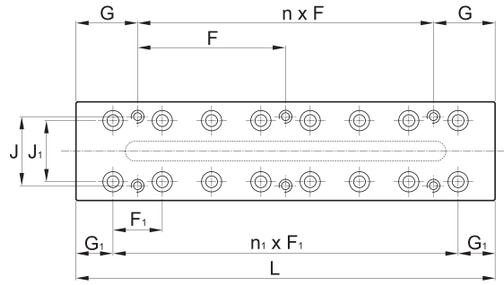
❶ 标准、黑色镀铬（低温镀黑铬）、氟碳化合物树脂涂层、硬镀铬
Standard , Black Chrome coating (Raydent treatment), Fluorocarbon resin coating, Hard Chrome plating

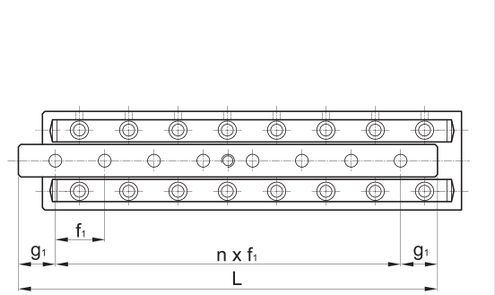
❷ 如需特殊表面处理，请联系SBC公司。
Contact SBC for special surface treatments.

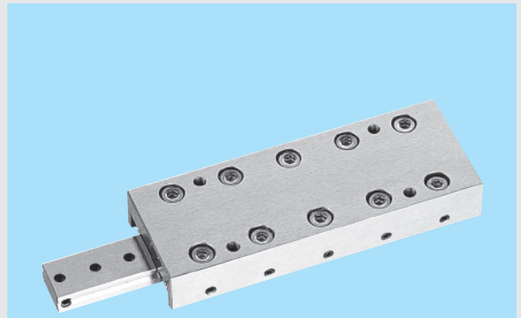
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRT1微型（底座螺纹孔）
SCVRT1 Miniature Type (Base Tapped-hole)







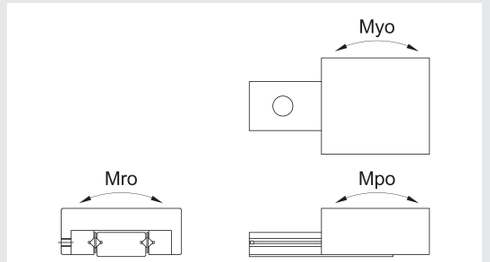
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions							
		W±0.1	T±0.1	L	Mass [g]	J	nxF	G	m2	n1xF1	J1	D1	G1
SCVRT 1025	12	20	8	25	23	14	1x18	3.5	M2.6	1x10	12.4	4.1	7.5
SCVRT 1035	18			35	32		1x28	3.5		2x10			
SCVRT 1045	25			45	42		1x20	12.5		3x10			
SCVRT 1055	32			55	52		1x30	12.5		4x10			
SCVRT 1065	40			65	62		2x20	12.5		5x10			
SCVRT 1075	45			75	72		1x30	22.5		6x10			
SCVRT 1085	50			85	82		2x30	12.5		7x10			

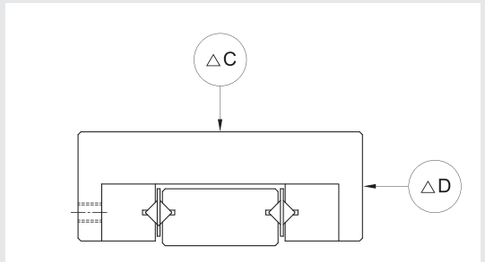
(单位 Unit : mm)

端部尺寸 End Dimensions						底座尺寸 安装孔位置 Base Dimensions mounting-hole position			滚子数量 No. of Rollers	基本额定载荷 [kN] Basic load rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
T1	T2	H	W1	A	m	m1	nxf1	g1	Z	C	Co	Mpo	Myo	Mro	△C	△D
7.5	3.5	4	6.7	5.5	M2	M2.6	2x7.5	5	5	0.28	0.27	0.75	0.46	0.69	2	4
							2x10	7.5	7	0.38	0.41	1.23	0.85	1.03		
							3x10		10	0.56	0.69	2.18	1.67	1.72		5
							4x10		12	0.65	0.82	2.97	2.35	2.06		
							5x10		14	0.73	0.96	3.87	3.17	2.40		
							6x10		18	0.87	1.27	6.05	5.16	3.19		
							7x10		20	0.94	1.37	7.32	6.37	3.43		

* 容许静力矩
Static permissible moment



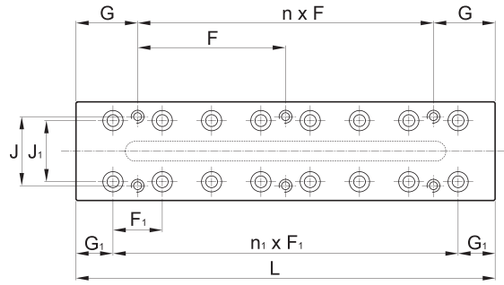
* 精度
Accuracy

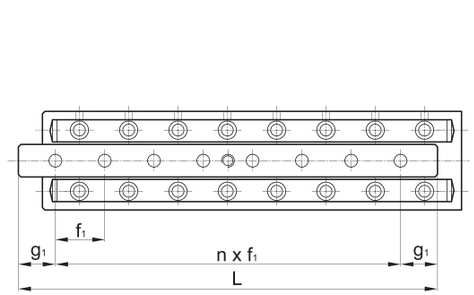


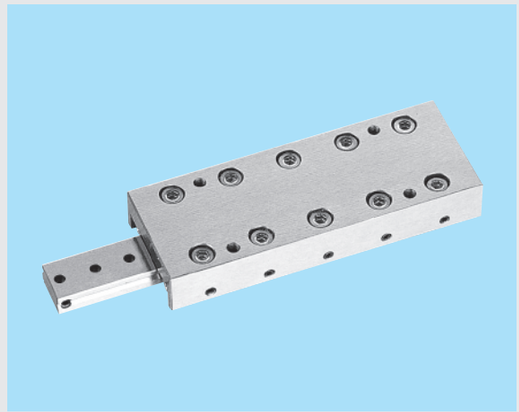
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRT2微型（底座螺纹孔）
SCVRT2 Miniature Type (Base Tapped-hole)







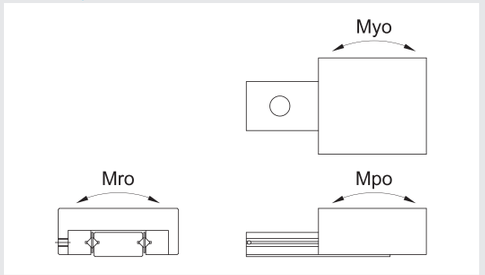
（单位 Unit : mm）

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions							
		W±0.1	T±0.1	L	质量 Mass [g]	J	nxF	G	m2	n1xF1	J1	D1	G1
SCVRT 2035	18	30	12	35	78	22	1x28	3.5	M3	1x15	20	6	10
SCVRT 2050	30			50	113		1x43	3.5		2x15			
SCVRT 2065	40			65	147		1x30	17.5		3x15			
SCVRT 2080	50			80	184		1x45	17.5		4x15			
SCVRT 2095	60			95	220		2x30	17.5		5x15			
SCVRT 2110	70			110	257		1x45	32.5		6x15			
SCVRT 2125	80			125	290		2x45	17.5		7x15			

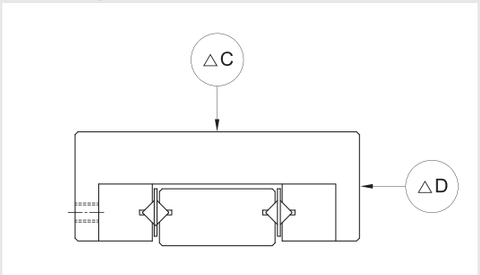
（单位 Unit : mm）

端部尺寸 End Dimensions						底座尺寸 安装孔位置 Base Dimensions mounting-hole position			滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
T1	T2	H	W1	A	m	m1	nxf1	g1	Z	C	Co	Mpo	Myo	Mro	△C	△D
11.5	5.5	6	12.2	8.5	M2	M3	1x20	7.5	5	0.51	0.51	2.29	1.37	2.21	2	4
							2x15	5	7	0.69	0.76	3.76	2.65	3.32		5
							3x15		9	0.85	0.98	5.62	4.22	4.25		
							4x15		12	0.98	1.27	9.10	7.26	5.52		
							5x15		14	1.18	1.57	11.8	9.71	6.80		
							6x15		17	1.47	2.06	16.7	14.1	8.93		
							7x15		19	1.57	2.25	20.4	17.5	9.77		

* 容许静力矩
Static permissible moment



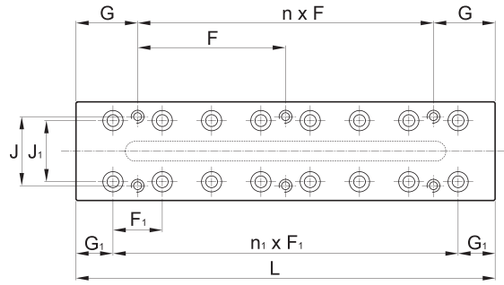
* 精度
Accuracy

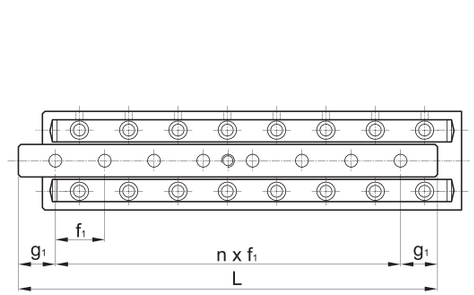


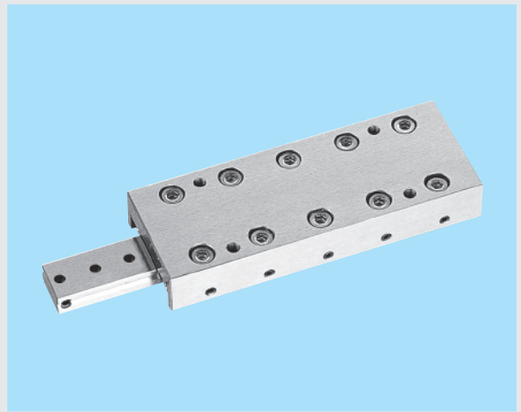
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRT3微型（底座安装孔）
SCVRT3 Miniature Type (Base Tapped-hole)







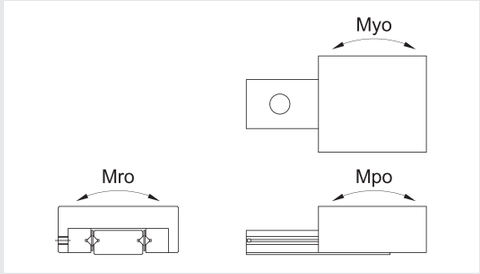
（单位 Unit : mm）

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions							
		W±0.1	T±0.1	L	质量 Mass [g]	J	nxF	G	m2	n1xF1	J1	D1	G1
SCVRT 3055	30	40	16	55	229	30	1x40	7.5	M4	1x25	28.4	7.5	15
SCVRT 3080	45			80	336		1x65	7.5		2x25			
SCVRT 3105	60			105	442		1x50	27.5		3x25			
SCVRT 3130	75			130	551		1x75	27.5		4x25			
SCVRT 3155	90			155	657		2x50	27.5		5x25			
SCVRT 3180	105			180	766		1x75	52.5		6x25			
SCVRT 3205	130			205	871		2x75	27.5		7x25			

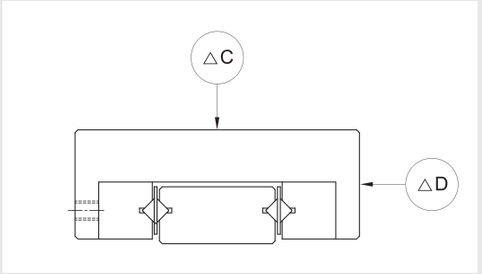
（单位 Unit : mm）

端部尺寸 End Dimensions						底座尺寸 安装孔位置 Base Dimensions mounting-hole position			滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
T1	T2	H	W1	A	m	m1	nxf1	g1	Z	C	Co	Mpo	Myo	Mro	△C	△D
15.5	7.5	8	16	11.5	M2	M4	1x35	10	6	1.27	1.37	9.85	6.57	7.97	2	5
							2x35	15	10	2.16	2.84	22.2	17	16.5		
							3x25		13	2.94	4.22	34.8	28.1	24.4	5	6
							4x25		17	3.63	5.69	55.8	47.1	33.3		
							5x25		20	3.92	6.37	74.7	64.6	36.9		
							6x25		24	4.02	6.57	104	92.3	38.1		
							7x25		26	4.22	7.16	120	107	41.5		

* 容许静力矩
Static permissible moment



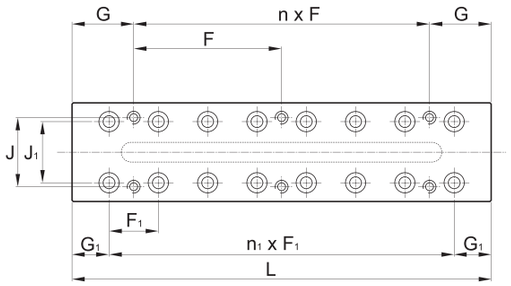
精度
* Accuracy

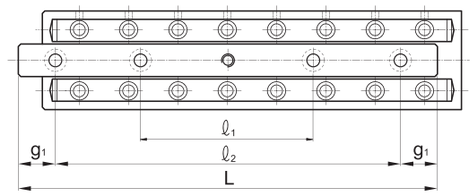


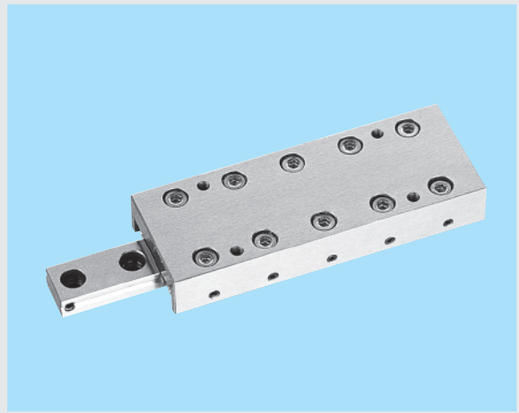
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRT1–A微型（底座安装孔）
SCVRT1-A Miniature Type (Base Mounting-hole)







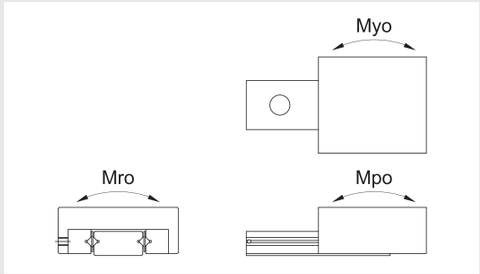
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions							
		W±0.1	T±0.1	L	质量 Mass [g]	J	nxF	G	m2	n1xF1	J1	D1	G1
SCVRT 1025A	12	20	8	25	23	14	1x18	3.5	M2.6	1x10	12.4	4.1	7.5
SCVRT 1035A	18			35	32		1x28	3.5		2x10			
SCVRT 1045A	25			45	42		1x20	12.5		3x10			
SCVRT 1055A	32			55	52		1x30	12.5		4x10			
SCVRT 1065A	40			65	62		2x20	12.5		5x10			
SCVRT 1075A	45			75	72		1x30	22.5		6x10			
SCVRT 1085A	50			85	82		2x30	12.5		7x10			

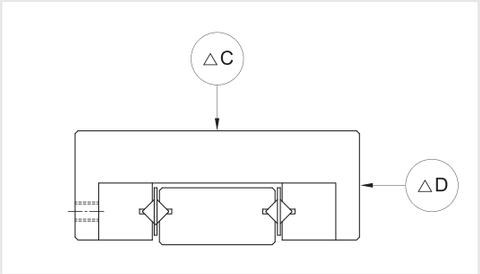
(单位 Unit : mm)

端部尺寸 End Dimensions						底座尺寸 安装孔位置 Base Dimensions mounting-hole position						滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
T1	T2	H	W1	A	m	m1	D	h	ℓ1	ℓ2	g1	Z	C	Co	Mpo	Myo	Mro	△C	△D
7.5	3.5	4	6.7	5.5	M2	2.5	4.1	2.2	-	18	3.5	5	0.28	0.27	0.75	0.46	0.69	2	4
									-	25	5	7	0.38	0.41	1.23	0.85	1.03		
									25	38	3.5	10	0.56	0.69	2.18	1.67	1.72		5
									29	48	3.5	12	0.65	0.82	2.97	2.35	2.06		
									31	55	5	14	0.73	0.96	3.87	3.17	2.40		
									35	65	5	18	0.87	1.27	6.05	5.16	3.19		
									40	75	5	20	0.94	1.37	7.32	6.37	3.43		

* 容许静力矩
Static permissible moment



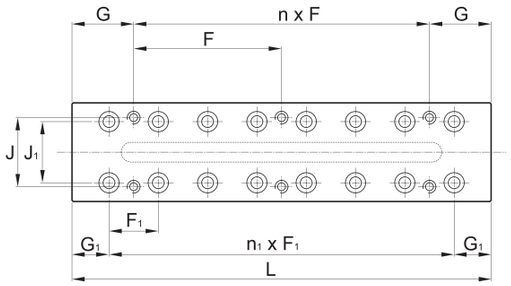
* 精度
Accuracy

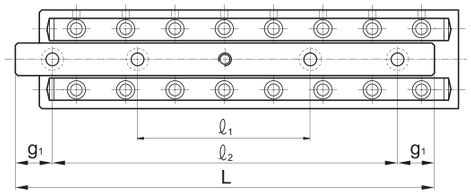


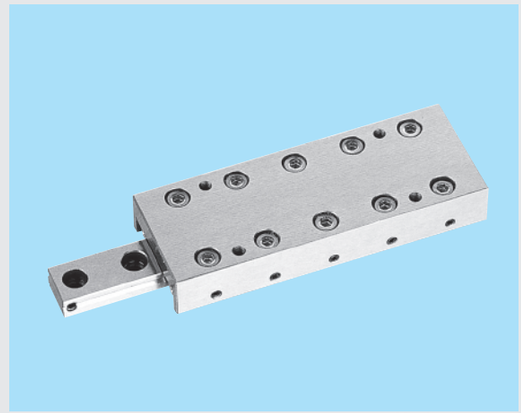
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRT2-A微型（底座安装孔）
SCVRT2-A Miniature Type (Base Mounting-hole)





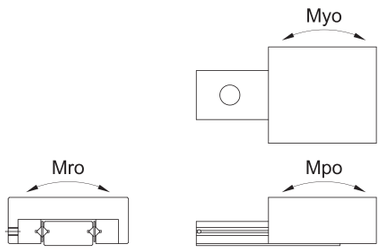


(单位 Unit : mm)

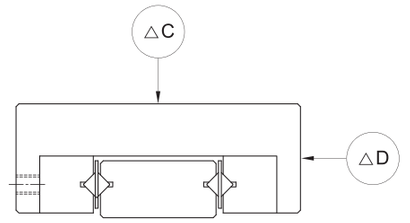
型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions							
		W±0.1	T±0.1	L	质量 Mass [g]	J	nxF	G	m2	n1xF1	J1	D1	G1
SCVRT 2035A	18	30	12	35	78	22	1x28	3.5	M3	1x15	20	6	10
SCVRT 2050A	30			50	113		1x43	3.5		2x15			
SCVRT 2065A	40			65	147		1x30	17.5		3x15			
SCVRT 2080A	50			80	184		1x45	17.5		4x15			
SCVRT 2095A	60			95	220		2x30	17.5		5x15			
SCVRT 2110A	70			110	257		1x45	32.5		6x15			
SCVRT 2125A	80			125	290		2x45	17.5		7x15			

端部尺寸 End Dimensions						底座尺寸 安装孔位置 Base Dimensions mounting-hole position						滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
T1	T2	H	W1	A	m	m1	D	h	ℓ1	ℓ2	g1	Z	C	Co	Mpo	Myo	Mro	△C	△D
11.5	5.5	6	12.2	8.5	M2	3.5	6	3.2	-	25	5	5	0.51	0.51	2.29	1.37	2.21	2	4
									-	35	7.5	7	0.69	0.76	3.76	2.65	3.32		
									33	55	5	9	0.85	0.98	5.62	4.22	4.25		5
									40	70	5	12	0.98	1.27	9.10	7.26	5.52		
									45	85	5	14	1.18	1.57	11.8	9.71	6.80		
									50	95	7.5	17	1.47	2.06	16.7	14.1	8.93		
									55	110	7.5	19	1.57	2.25	20.4	17.5	9.77		

* 容许静力矩
Static permissible moment



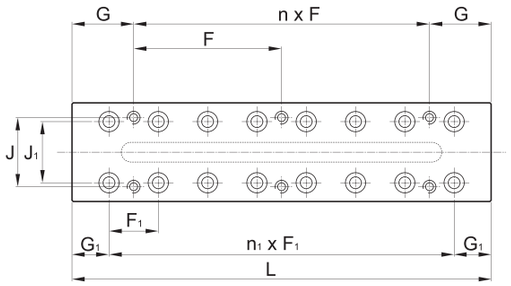
* 精度
Accuracy

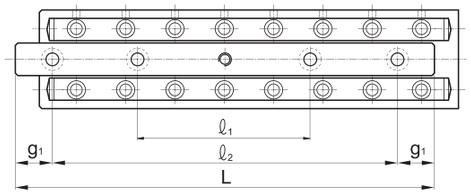


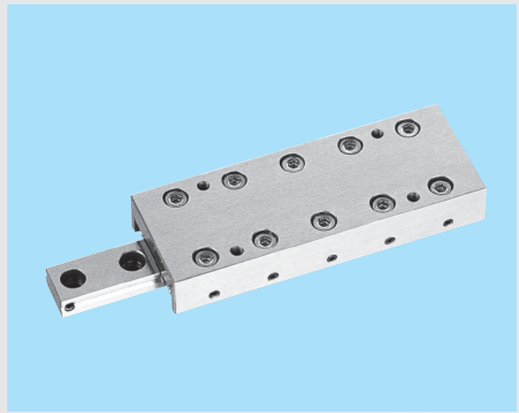
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRT3-A微型（底座安装孔）
SCVRT3-A Miniature Type (Base Mounting-hole)







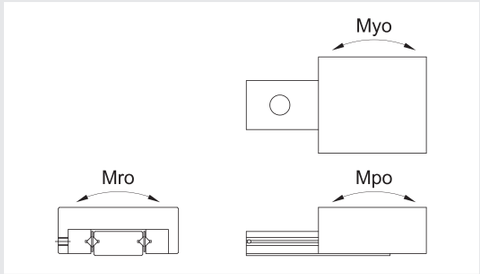
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions							
		W±0.1	T±0.1	L	质量 Mass [g]	J	nxF	G	m2	n1xF1	J1	D1	G1
SCVRT 3055A	30	40	16	55	229	30	1x40	7.5	M4	1x25	28.4	7.5	15
SCVRT 3080A	45			80	336		1x65	7.5		2x25			
SCVRT 3105A	60			105	442		1x50	27.5		3x25			
SCVRT 3130A	75			130	551		1x75	27.5		4x25			
SCVRT 3155A	90			155	657		2x50	27.5		5x25			
SCVRT 3180A	105			180	766		1x75	52.5		6x25			
SCVRT 3205A	130			205	871		2x75	27.5		7x25			

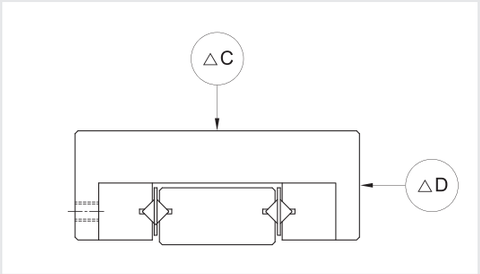
(单位 Unit : mm)

端部尺寸 End Dimensions						底座尺寸 安装孔位置 Base Dimensions mounting-hole position						滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
T1	T2	H	W1	A	m	m1	D	h	ℓ1	ℓ2	g1	Z	C	Co	Mpo	Myo	Mro	△C	△D
15.5	7.5	8	16	11.5	M2	4.5	7.5	4.2	-	40	7.5	6	1.27	1.37	9.85	6.57	7.97	2	6
									43	68	6	10	2.16	2.84	22.2	17	16.5		
									55	90	7.5	13	2.94	4.22	34.8	28.1	24.4	3	6
									65	115	7.5	17	3.63	5.69	55.8	47.1	33.3		
									958	140	7.5	20	3.92	6.37	74.7	64.6	36.9		
									85	165	7.5	24	4.02	6.57	104	92.3	38.1		
									90	190	7.5	26	4.22	7.16	120	107	41.5		

容许静力矩
* Static permissible moment



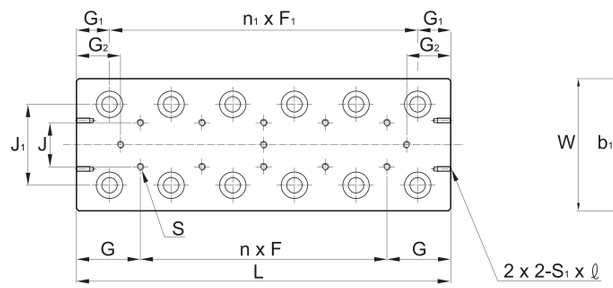
精度
* Accuracy

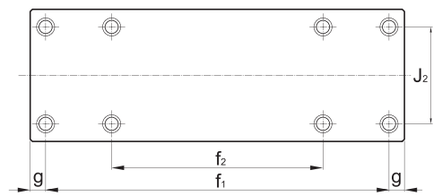


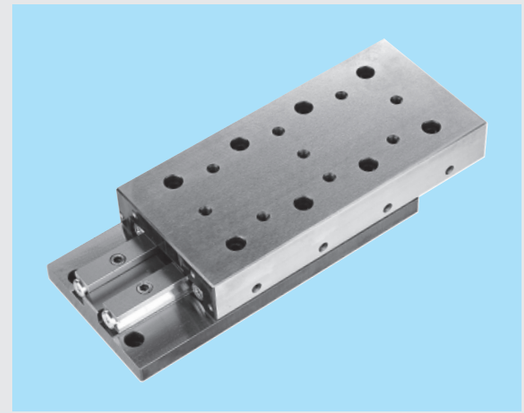
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVR U1型
SCVRU1 Type





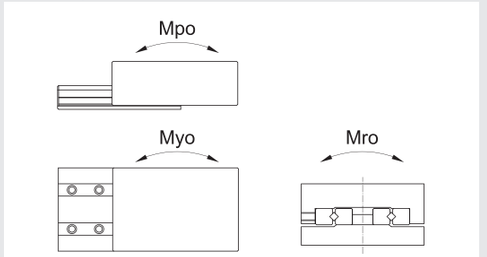


(单位 Unit : mm)

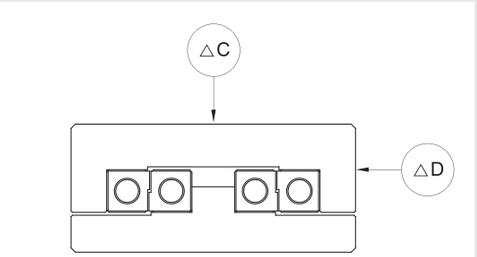
型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions												
		W -0.2 -0.4	T ±0.1	L	质量 Mass [kg]	J	nxF	G	S	J1	n1xF1	G1	G2	b1	T3	S1xℓ	T2	T1
SCVRU 1025	12	30	17	25	0.08	10	-	12.5	M2	18.4	-	7.5	2.5	12	2.5	M2x4	11	5.5
SCVRU 1035	18			35	0.11		1x10				1x10		4.5					
SCVRU 1045	25			45	0.15		2x10				2x10		6					
SCVRU 1055	32			55	0.18		3x10				3x10		7.5					
SCVRU 1065	40			65	0.21		4x10				4x10		8.5					
SCVRU 1075	45			75	0.24		5x10				5x10		11					
SCVRU 1085	50			85	0.27		6x10				6x10		13.5					

端部尺寸 End Dimensions								底座尺寸 安装孔位置 Base Dimensions mounting-hole position				滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
K	d	D	h	D1	m1	A	m2	J2	f1	f2	g	Z	C	Co	Mpo	Myo	Mro	△C	△D
6.5	2.55	4.1	2.5	4.1	M2	9	M2	22	18	-	3.5	5	0.28	0.27	0.75	0.46	1.24	2	4
									28	-		7	0.38	0.41	1.23	0.85	1.85		
									38	-		10	0.56	0.69	2.18	1.67	3.09		
									48	28		12	0.65	0.82	2.97	2.35	3.71		5
									58	38		14	0.73	0.96	3.87	3.17	4.33		
									68	48		18	0.87	1.27	6.05	5.16	5.74		
									78	58		20	0.94	1.37	7.32	6.34	6.18		

* 容许静力矩
Static permissible moment



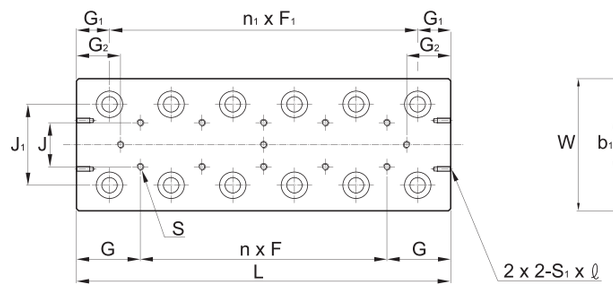
* 精度
Accuracy

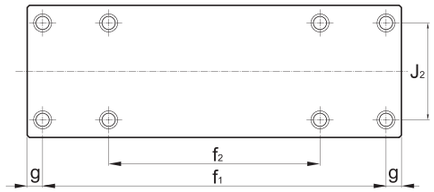


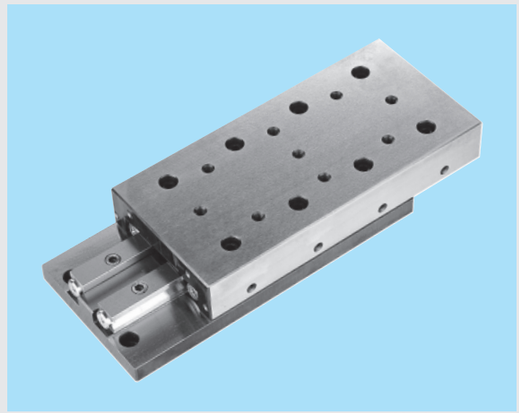
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRU2型
SCVRU2 Type







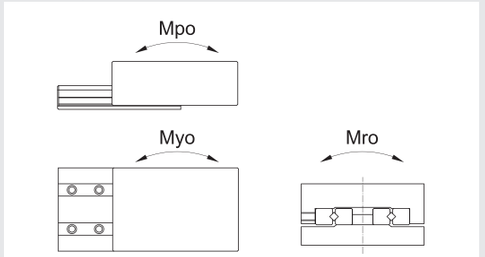
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions												
		W -0.2 -0.4	T ±0.1	L	质量 Mass [kg]	J	nxF	G	S	J1	n1xF1	G1	G2	b1	T3	S1xℓ	T2	T1
SCVRU 2035	18	40	21	35	0.2	15	-	17.5	M3	25	1x15	10	3	16	3.4	M2x4	14	6.5
SCVRU 2050	30			50	0.26		1x15				2x15		4.5					
SCVRU 2065	40			65	0.34		2x15				3x15		7					
SCVRU 2080	50			80	0.42		3x15				4x15		9.5					
SCVRU 2095	60			95	0.5		4x15				5x15		12					
SCVRU 2110	70			110	0.58		5x15				6x15		14.5					
SCVRU 2125	80			125	0.66		6x15				7x15		17					

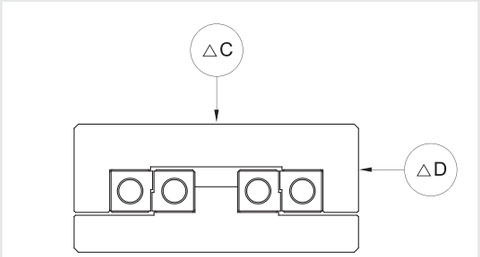
(单位 Unit : mm)

端部尺寸 End Dimensions								底座尺寸 安装孔位置 Base Dimensions mounting-hole position				滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
K	d	D	h	D1	m1	A	m2	J2	f1	f2	g	Z	C	Co	Mpo	Myo	Mro	△C	△D
7.5	3.5	6	3.5	6	M3	11	M3	30	25	-	5	5	0.51	0.51	2.29	1.4	3.06	2	4
									40	-		7	0.69	0.76	3.76	2.6	4.59		
									55	-		9	0.85	0.98	5.62	4.17	5.89		5
									70	40		12	1.18	1.57	9.1	7.22	9.42		
									85	55		14	1.27	1.76	11.8	9.7	10.5		
									100	70		17	1.47	2.06	16.7	14.1	12.3	3	6
									115	85		19	1.57	2.25	20.4	17.5	13.5		

* 容许静力矩
Static permissible moment



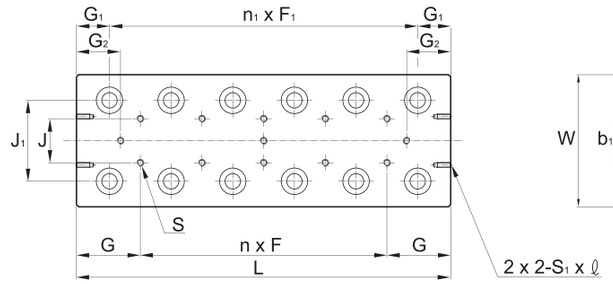
* 精度
Accuracy

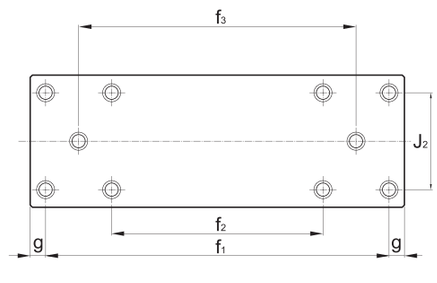


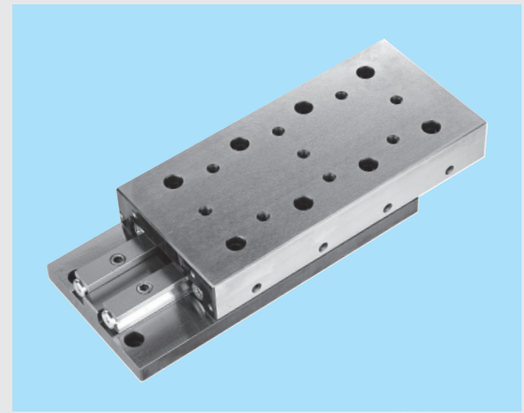
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRU3型
SCVRU3 Type







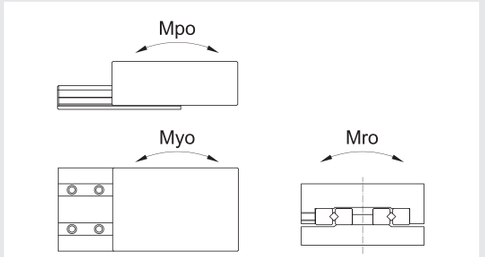
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions												
		W ±0.1	T ±0.1	L	质量 Mass [kg]	J	nxF	G	S	J1	n1xF1	G1	G2	b1	T3	S1xℓ	T2	T1
SCVRU 3055	30	60	28	55	0.57	25	-	27.5	M4	39	1x25	15	5.5	40	5.5	M3x6	18.5	9
SCVRU 3080	45			80	0.80		1x25				2x25		10.5					
SCVRU 3105	60			105	1.03		2x25				3x25		15.5					
SCVRU 3130	75			130	1.26		3x25				4x25		20.5					
SCVRU 3155	90			155	1.49		4x25				5x25		25.5					
SCVRU 3180	105			180	1.72		5x25				6x25		30.5					
SCVRU 3205	130			205	1.95		6x25				7x25		30.5					

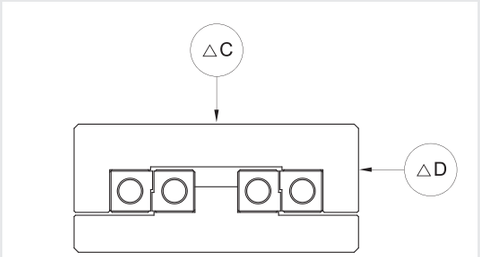
(单位 Unit : mm)

端部尺寸 End Dimensions								底座尺寸 安装孔位置 Base Dimensions mounting-hole position					滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N.m] Static permissible moment [N.m]			精度 Accuracy [μm]	
K	d	D	h	D1	m1	A	m2	J2	f1	f2	f3	g	Z	C	Co	Mpo	Myo	Mro	△C	△D
10	4.5	7.5	5	7.5	M4	14.5	M4	40	3	-	-	10	6	C	1.67	9.85	6.54	15.5	2	5
									60	-	-		10	1.47	2.75	22.2	17	25.6		
									85	-	-		13	2.06	3.33	34.8	28.1	31.1	3	6
									110	-	-		17	2.35	4.41	55.8	47.1	41.2		
									135	-	85		20	2.94	5.49	74.7	64.6	51.2		7
									160	-	110		24	3.53	6.57	104	92.3	61.3		
									185	85	135		26	4.02	7.16	120	107	66.8		

* 容许静力矩
Static permissible moment



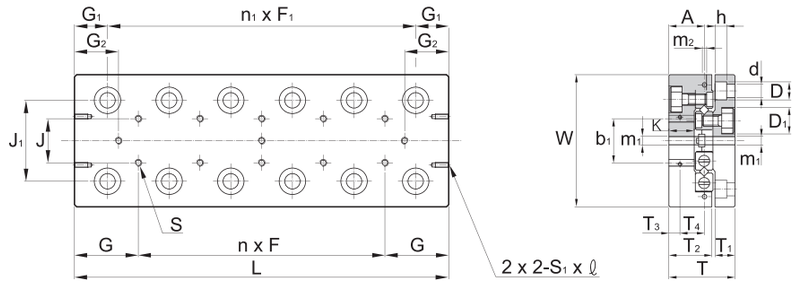
* 精度
Accuracy

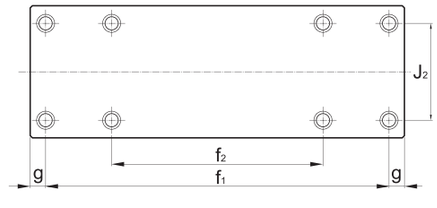


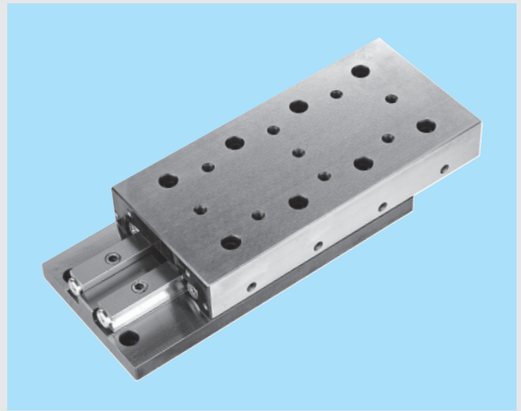
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRU4型
SCVRU4 Type



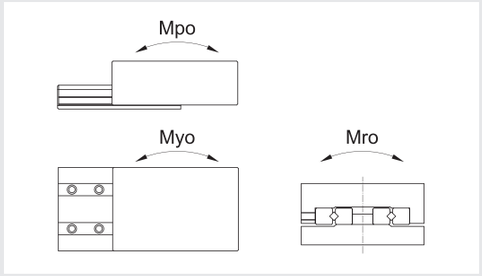




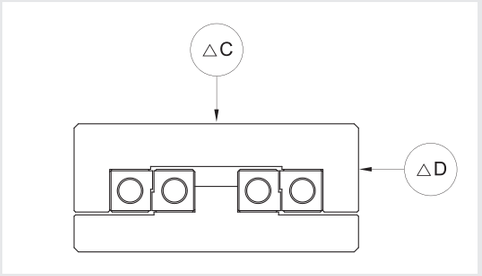
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions														端部尺寸 End Dimensions										底座尺寸 安装孔位置 Base Dimensions mounting-hole position		滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N. m] Static permissible moment [N.m]			精度 Accuracy [μm]	
		W ±0.1	T ±0.1	L	质量 Mass [kg]	J	nxF	G	S	J1	n1xF1	G1	G2	b1	b2	T3	T4	S1xℓ	T2	T1	K	d	D	h	D1	m1	A	m2	J2	f1	f2	g	Z	C	Co	Mpo	Myo	Mro	△C	△D
SCVRU 4085	50	80	35	85	1.5	40	-	42.5	M5	53	1x40	22.5	10.5	55		6.5		M3x6	24	10.5	12.5	5.5	9.5	6	9.5	M4	18.5	M4	60	65	-	10	7	3.53	4.8	48.7	33.7	64	2	5
SCVRU 4125	75			125	2.3		1x40				2x40		18																	80	-	22.5	11	5.2	8.04	101	79.1	107	3	6
SCVRU 4165	105			165	3.1		2x40				3x40		23																	120	-		14	6.77	11.3	153	125	150		7
SCVRU 4205	135			205	3.8		3x40				4x40		30.5																	160	80		18	8.14	14.5	239	204	193		
SCVRU 4245	155			245	4.6		4x40				5x40		38																	200	120		22	9.42	17.7	344	302	235		
SCVRU 4285	185			285	5.3		5x40				6x40		43																	240	160		26	10.7	20.9	468	418	278		

* 容许静力矩
Static permissible moment



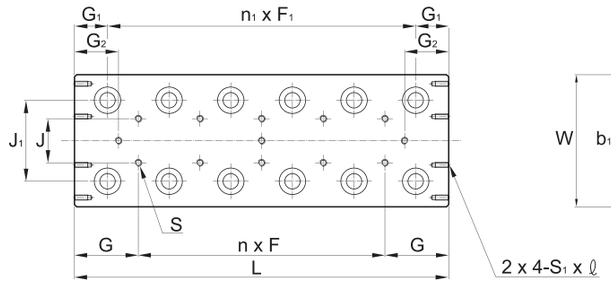
* 精度
Accuracy

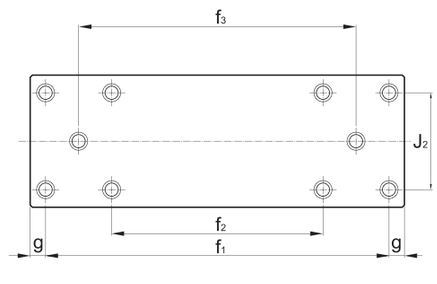


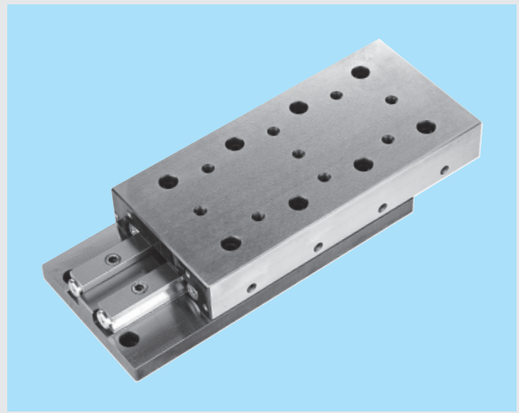
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRU6型
SCVRU6 Type



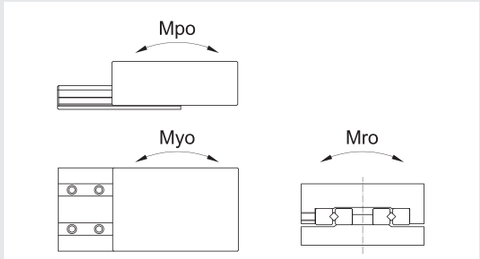




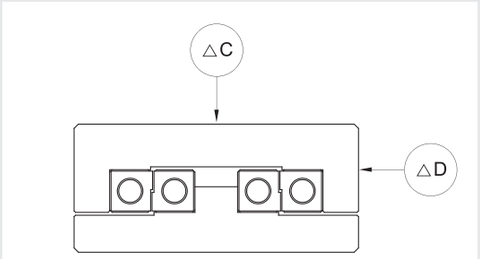
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions														端部尺寸 End Dimensions								底座尺寸 安装孔位置 Base Dimensions mounting-hole position					滚子数量 No. of Rollers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N.m] Static permissible moment [N.m]			精度 Accuracy [μm]	
		W ±0.1	T ±0.1	L	质量 Mass [kg]	J	nxF	G	S	J1	n1xF1	G1	G2	b1	b2	T3	T4	S1xℓ	T2	T1	K	d	D	h	D1	m1	A	m2	J2	f1	f2	f3	g	Z	C	Co	Mpo	Myo	Mro	△C	△D
SCVRU 6110	60	100	45	11	3.2	50	-	55	M6	63	1x50	30	16	60	92	8	15	M4x8	31	13	15	7	11	7	11	M5	23.5	M5	60	90	-	-	10	9	7.45	10.6	121	80.5	158	3	6
SCVRU 6160	95			160	4.6		1x50				2x50		23.5																	140	-	-		9	9.31	14.1	231	171	211		
SCVRU 6210	130			210	6		2x50				3x50		31																	190	-	90		13	12.5	21.1	428	345	317		7
SCVRU 6260	165			260	7.4		3x50				4x50		38.5																	240	-	140		16	15.6	28.2	616	516	423		
SCVRU 6310	200			310	8.7		4x50				5x50		46																	290	-	190		19	17.1	31.8	838	720	476	4	8
SCVRU 6360	235			360	10.1		5x50				6x50		53.5																	340	140	240		22	19.8	38.8	1090	958	582		
SCVRU 6410	265			410	11.5		6x50				7x50		63.5																	390	190	290		26	22.5	45.9	1480	1320	688		

* 容许静力矩
Static permissible moment



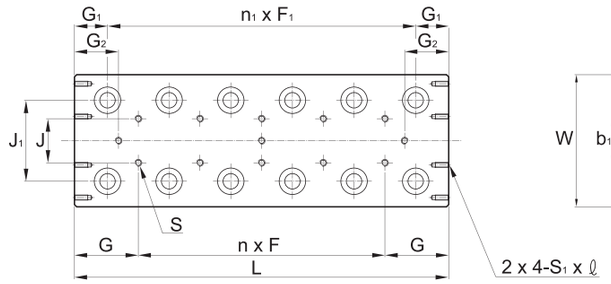
* 精度
Accuracy

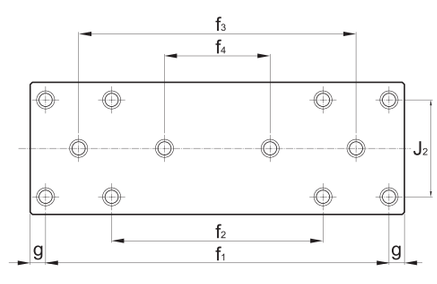


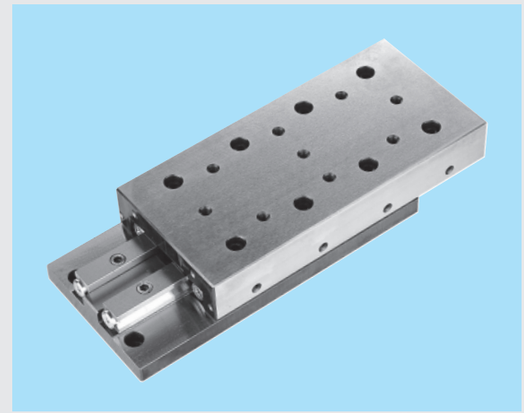
交叉滚子导轨
Cross Roller Guide

SCVRT型交叉滚子工作台
Cross Roller Table SCVRT Type

SCVRU9型
SCVRU9 Type



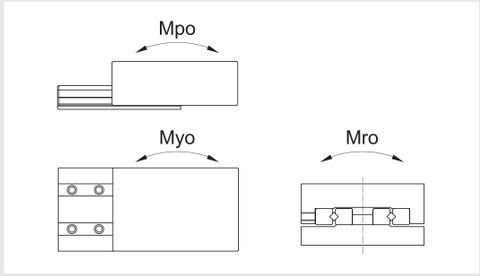




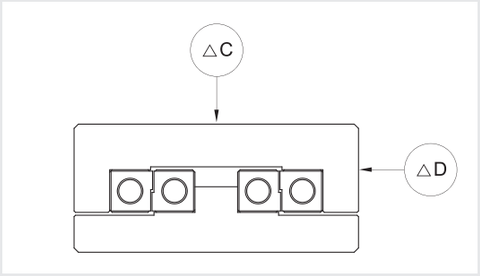
(单位 Unit : mm)

型号 Model No.	最大行程 Max Stroke	主要尺寸 Major Dimensions				顶板尺寸 Top Dimensions														端部尺寸 End Dimensions									底座尺寸 安装孔位置 Base Dimensions mounting-hole position					滚子数量 No. of Roliers	基本额定载荷 [kN] rating [kN]		容许静力矩 [N.m] Static permissible moment [N.m]			精度 Accuracy [μm]	
		W ±0.1	T ±0.1	L	质量 Mass [kg]	J	nxF	G	S	J1	n1xF1	G1	G2	b1	b2	T3	T4	S1xℓ	T2	T1	K	d	D	h	D1	m1	A	m2	J2	f1	f2	f3	f4	g	Z	C	Co	Mpo	Myo	Mro	△C	△D
SCVRU 9210	130	145	60	210	12	85	-	105	M8	96	1x100	55	27	90	135	11	20	M4X8	43	16	21	9	14	9	14	M8	32	M6	90	100	-	-	-	55	9	20.9	34.9	837	622	838	3	7
SCVRU 9310	180			310	17.6		1x100				2x100		52																	200	-	-	-		14	31.9	61.1	1760	1440	1460		
SCVRU 9410	350			410	23.2		2x100				3x100																			300	-	100	-		15	31.9	61.1	1990	1650	1460	4	8
SCVRU 9510	450			510	28.8		3x100				4x100																			400	-	200	-		19	38.4	78.5	3030	2600	1880		
SCVRU 9610	550			610	34.4		4x100				5x100		17																	500	100	300	-		22	44.7	96	3950	3460	2300		9
SCVRU 9710	650			710	40		5x100				6x100																			600	200	400	-		26	50.6	114	5380	4810	2730		
SCVRU 9810	750			810	45.6		6x100				7x100																			700	300	500	100		29	53.5	123	6600	5960	2940	5	10

* 容许静力矩
Static permissible moment



* 精度
Accuracy



运输机器人滑轨
Robot Carrier Guide

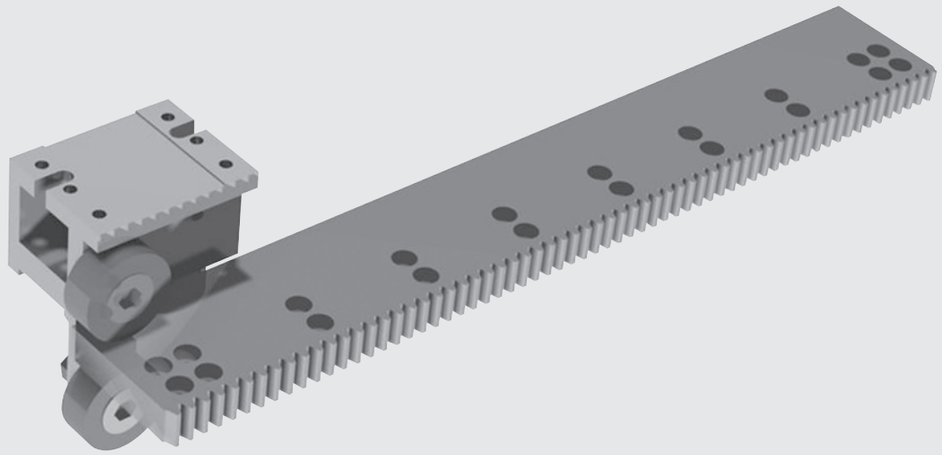
技术数据/滑架（3滚子）/滑架（4滚子）/
滑架选项/平轨/齿轨

Technical Data / Carriage (3 rollers) / Carriage (4 rollers) /
Carriage Option / Flat Rail / Rack Rail

运输机器人滑轨
Robot Carrier Guide

技术数据
Technical Data

SBC运输机器人滑轨简介
SBC Robot Carrier Guide Introduction

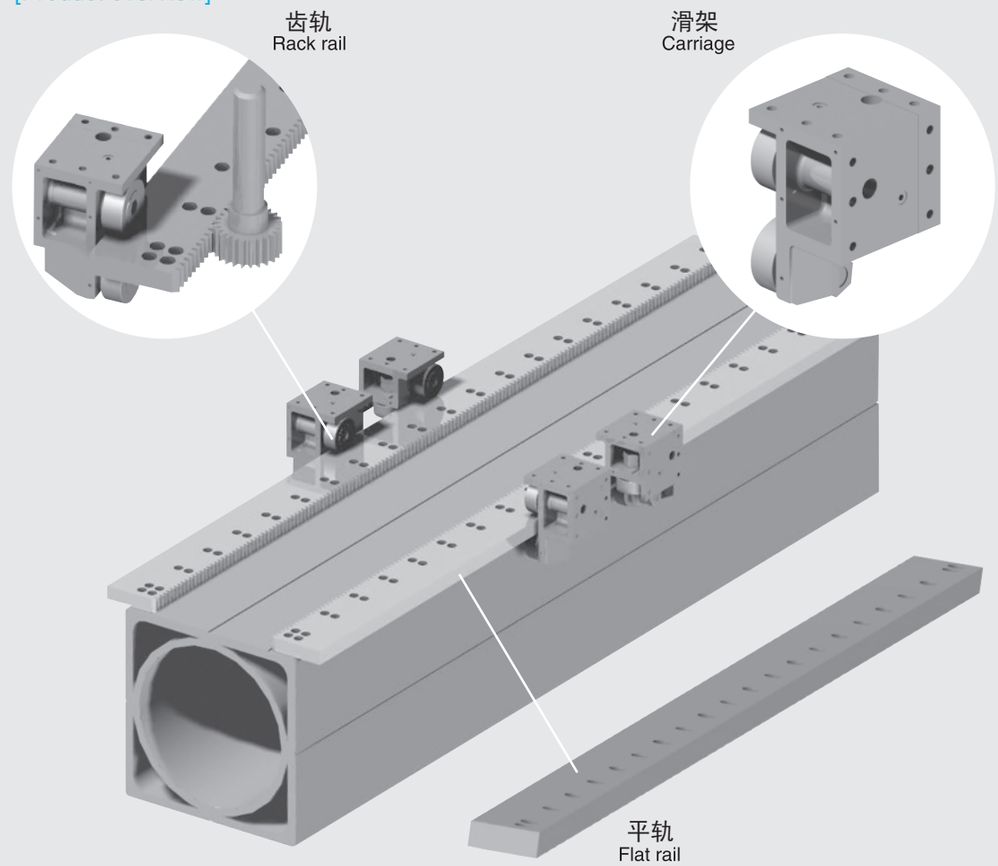


SBC运输机器人滑轨系统采用了能在滑轨和驱动系统上轻松安装的平轨/齿轨。
我们独家研发的3凸轮滚子滑架设计能在高速平移时确保高载荷能力和一流精度。

SBC Robot Carrier Guide System uses a flat rack rail that easily mounts to guide and drive system.
Our exclusive 3 cam roller carriage design allows for high load and accuracy at high travel speeds.

齿轨与小齿轮组合
Rack rail and pinion assembly

[产品概述]
[Product overview]



[应用实例]
[For example application]

运输机器人的驱动系统能与齿轨、滑架小齿轮和直线滑轨任意组合。
The drive system for robot carrier can be easily consisted with combination of rack rail, carrier pinion and linear guide.

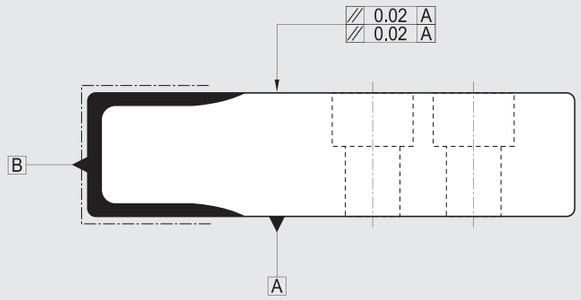
运输机器人滑轨
Robot Carrier Guide

技术数据
Technical Data

精度
Accuracy

滑轨系统的滑轨导向精度决定了滚子滑块的移动性能和精度。
Our guide curacy of guide rail in guide system is a key factor which affects the traveling performance of roller block and basically accuracy.

滚动面采用硬度达HrC58~62的精密磨削滑轨系统，因此确保了系统的耐久性。
The precisely grounded guide rail system of raceway with hardness HrC58~62 achieves durability



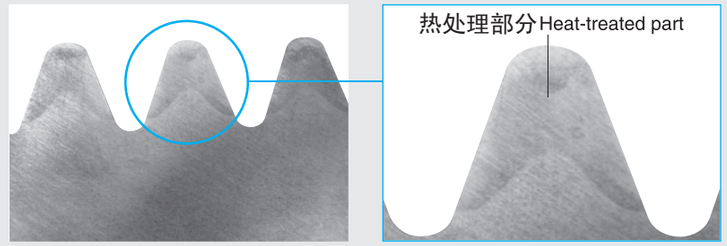
小齿轮与齿条精度
Pinions and Racks Accuracy

	HrC	fp [mm]	Fp [mm]	P [mm]
小齿轮 Pinion	58~62	0.006	-	-
齿条 Rack	56~60	0.008	0.08	0.03

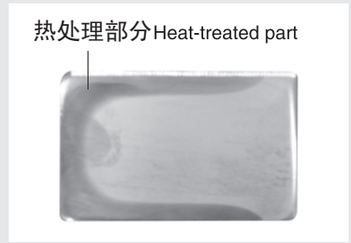
- fp : 相邻节距误差 Adjacent pitch error
- Fp/1000mm : 累积节距误差 Cumulative pitch error
- P : 切削节距公差 Pitch tolerance of cut

硬度与耐久性测试
Hardness and durability test

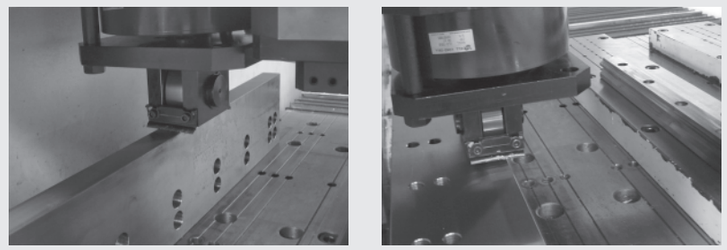
[图1：齿廓的硬度模式]
[Fig1. Hardness pattern for tooth profile]



[图2：平轨的硬度模式]
[Fig2. Hardness pattern for flat rail]



[图3：耐久性测试]
[Fig3. Durability test]

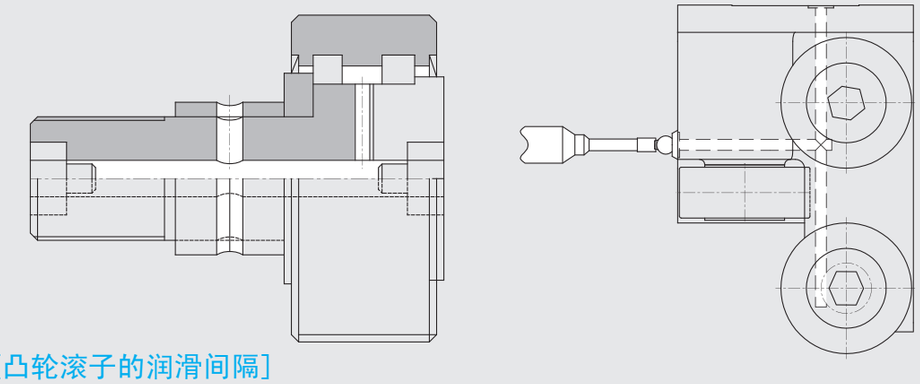


运输机器人滑轨
Robot Carrier Guide

技术数据
Technical Data

润滑
Lubrication

要确保长久地无故障运行，必须选择适用的润滑剂、正确的分布方法和适当的间隔。
It is important to select the appropriatelubricant,distribution method and Interval to assure long, trouble-free operating life.

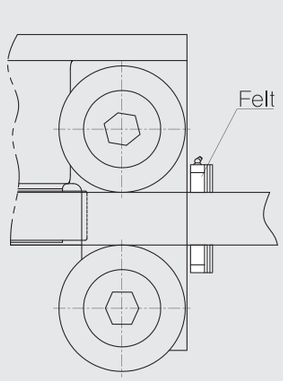


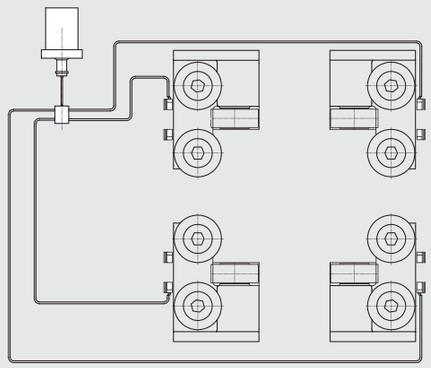
[凸轮滚子的润滑间隔]
[Cam Roller Lubrication Interval]

建议每移动10, 000 Km后润滑一次，但也有几种因素会影响润滑间隔，请就您的具体应用咨询厂家。
We recommend lubricating every 10,000 Km of travel,however several factors affect this interval. Please consult factory with your specific application.

[齿条与小齿轮润滑]
[Rack &Pinion Lubrication]

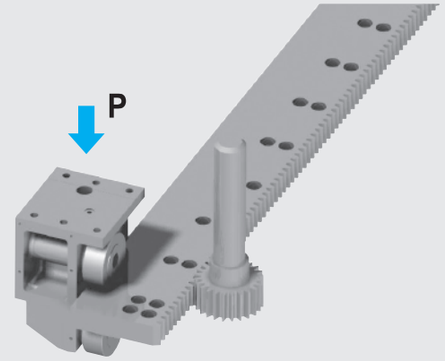
建议使用自动润滑系统对齿条和小齿轮进行正确润滑。
We recommend using an automatic lubrication system to keep the rack and pinion properly lubricated.





计算使用寿命
Calculation of Life time

计算滚子使用寿命时应采用最大工作负荷。
Use max operating load when calculating roller life.



$$P = m \cdot g$$

$$Pw = f \cdot P$$

$$L = K_r \cdot \left(\frac{Cw}{Pw} \right)^{\frac{10}{3}} X\ 10^5$$

载荷系数:（fw）
Load coefficient : (fw)

- P (N) :最大载荷 Maximum load
- m (kg) :质量 mass
- g (m/s²) :重力 gravity
- Pw (N) :计算载荷 Calculated load
- f (-) :载荷系数 Load coefficient
- L(hours) :使用寿命 Life
- Kr (-) :尺寸影响系数 Size coefficient
- C (N) :基本额定动载荷 Basic dynamic load rating

振动/冲击 Vibration / Impact	f
轻 Slight	1.0 ~ 1.2
中 Moderate	1.2 ~ 1.5
强 Strong	1.5 ~ 2.5

静安全系数:（fs）
Static safety coefficient : (fs)

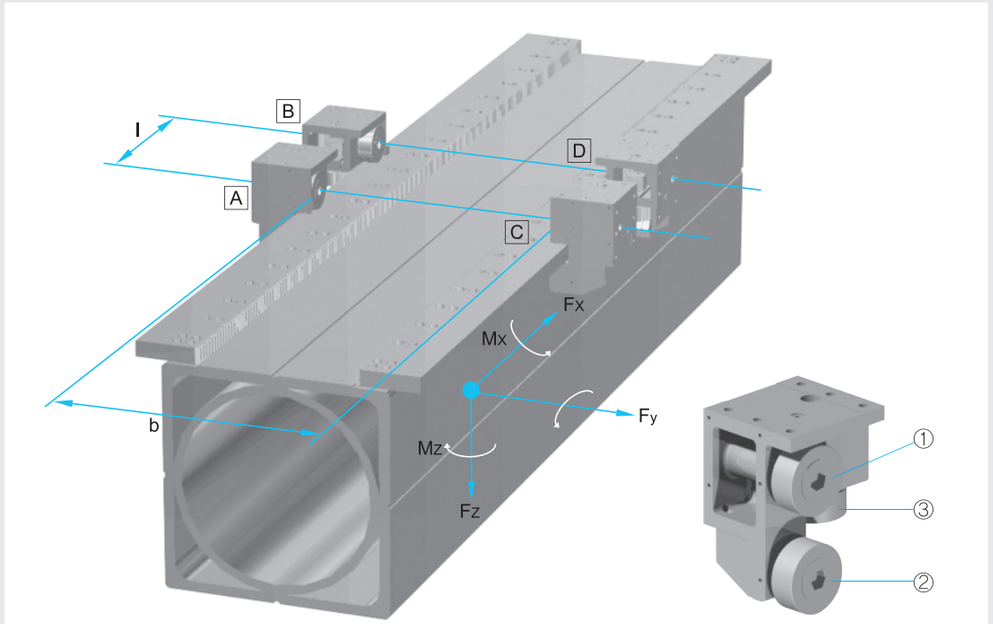
静安全系数是采用最大静载荷计算的。
最大静载荷除以基本静载荷后的数值必须大于1. 0。
Static safety factor is calculated as using the static max load.This value must be bigger than 1.0 after dividing static max load by basic static load.

- fs (-) :静安全系数 Static safety coefficient
- Co (N) :基本额定静载荷 Basic static load rating
- Pw (N) :计算载荷 Calculated load

$$fs = 0.7\ X\ \frac{Co}{Pw} \quad 0.7 > 1.0$$

运输机器人滑轨
Robot Carrier Guide
技术数据
Technical Data

计算施加载荷
Calculating the applied load



[滚子1与滚子2的载荷]
[Load of roller No.1 and No.2]

如果结果是正值，表示滚子1上有径向载荷。
If the result is positive, roller No.1 has a radial load.
如果结果是负值，表示滚子2上有径向载荷。
If the result is negative, roller No.2 has a radial load.

$$P_{A1;B2} = F_Z \cdot \left(\frac{1}{2} - \frac{a_y}{b}\right)\left(\frac{1}{2} - \frac{a_x}{l}\right) + \frac{F_x}{2} \cdot \frac{a_z}{l} + \frac{F_y}{2} \cdot \frac{a_z}{b} \quad (kN)$$

$$P_{B1;B2} = F_Z \cdot \left(\frac{1}{2} - \frac{a_y}{b}\right)\left(\frac{1}{2} - \frac{a_x}{l}\right) + \frac{F_x}{2} \cdot \frac{a_z}{l} + \frac{F_y}{2} \cdot \frac{a_z}{b} \quad (kN)$$

$$P_{C1;C2} = F_Z \cdot \left(\frac{1}{2} - \frac{a_y}{b}\right)\left(\frac{1}{2} - \frac{a_x}{l}\right) + \frac{F_x}{2} \cdot \frac{a_z}{l} + \frac{F_y}{2} \cdot \frac{a_z}{b} \quad (kN)$$

$$P_{D1;D2} = F_Z \cdot \left(\frac{1}{2} - \frac{a_y}{b}\right)\left(\frac{1}{2} - \frac{a_x}{l}\right) + \frac{F_x}{2} \cdot \frac{a_z}{l} + \frac{F_y}{2} \cdot \frac{a_z}{b} \quad (kN)$$

[滚子3的载荷]
[Load of roller No.3]

如果结果是正值，表示滚子A3和B3上有径向载荷。
If the result is positive, roller A3 and B3 has a radial load.

$$P_{A3;C3} = F_y \cdot \left(\frac{1}{2} - \frac{a_x}{l}\right) + F_x \cdot \frac{a_y}{l} \quad (kN)$$

如果结果是负值，表示滚子C3和D3上有径向载荷。
If the result is negative, roller C3 and D3 has a radial load.

$$P_{B3;D3} = F_y \cdot \left(\frac{1}{2} + \frac{a_x}{l}\right) + F_x \cdot \frac{a_y}{l} \quad (kN)$$

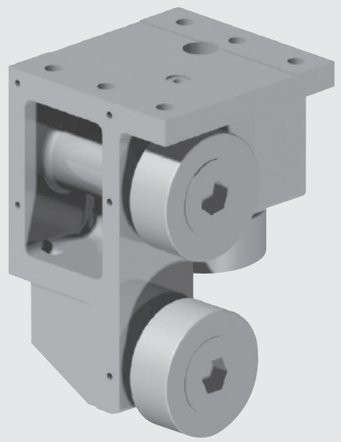
运输机器人滑轨
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技术数据
Technical Data

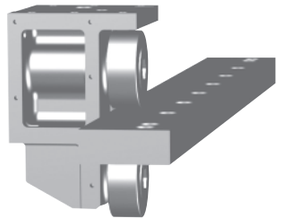
结构特性
The feature of structure

滑架包括3个滚子。其中一个是同心（固定）滚子，另外两个是偏心（可调）滚子。
正确调节可确保在高载荷条件下高速运行。

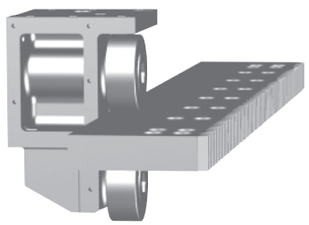
The carriage consists of 3 rollers. One roller is concentric (fixed) and two rollers are eccentric rollers (adjustable). Proper adjustment will allow high speeds with high loads.



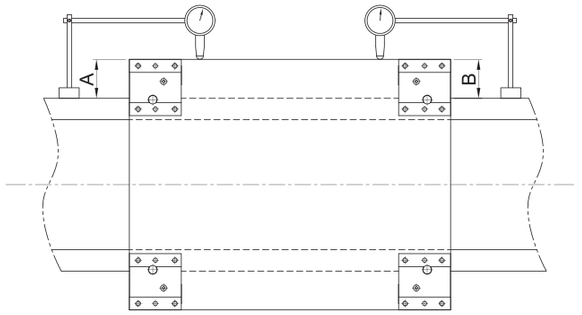
[平轨与滑架组合实例]
[Example for flat rail and carriage assembly.]

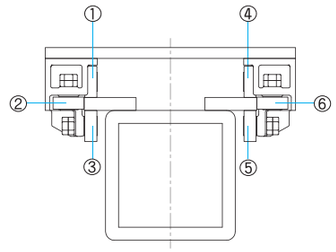


[齿轨与滑架组合实例]
[Example for rack rail and carriage assembly.]



运输机器人滑轨系统安装实例
Example for installing robot carrier guide system





Ⅰ. 将①和④设为“0”后安装 ②, ③, ⑤, ⑥.
After setting ①and ④as “0” and assemble ②, ③, ⑤, ⑥.

Ⅱ. 调节②、⑤的偏心度并用螺母固定。
Adjust eccentricity of ②, ⑤ and fix them with nut.

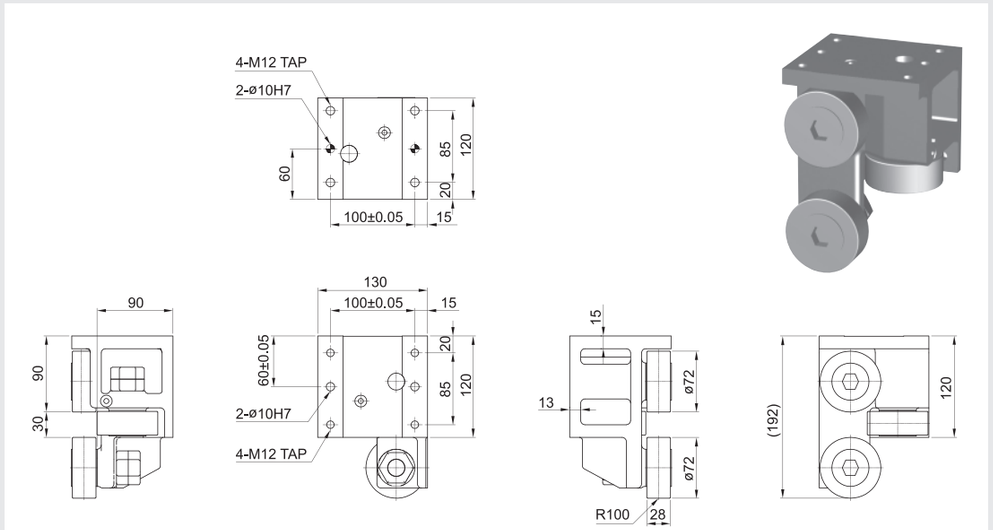
Ⅲ. 使A和B相同，然后固定滚子③，再将齿条和小齿轮的齿隙调至“0”。
Make A and B be the same,before fixing Roller ③ and adjust the back lash of Rack and Pinion to “0”

Ⅳ. 将齿隙偏心度调至“0. 1mm”，然后固定滚子③。
Adjust eccentricity of gear back lash to “0.1mm” and fix the Roller ③

Ⅴ. 调节滚子 ③ 的偏心度并用螺母固定。
Adjust eccentricity of the Roller ⑥ and fix it with nut.

Ⅵ. 检查滚动性能，重调滚子②、⑤, ⑥.最后用螺母固定。
Check up Rolling performance and readjust the Roller ②, ⑤, ⑥ and then finally fix them with nut.

723X型滑架（3滚子）
723X Carriage (3 rollers)



（单位Unit : mm）

Type	*1	*2	*3	Kr	Co (kN)	C1 (kN)	C2 (kN)	N_{max} (min^{-1})
7231R	BR	ER	ER	2.262	46.5	24.6	6.2	2200
7232R	BR	ER	BR					
7233R	ER	BR	ER					

Co :额定静载荷 Static Load Rating

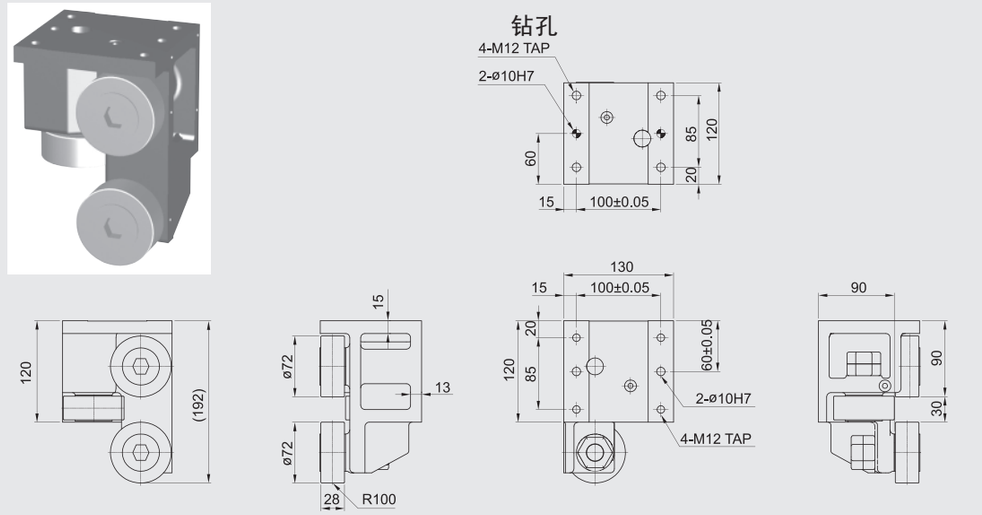
C1 :106 km行程的额定动载荷 Dynamic load rating for 10^6 km distance.

C2 :108行程的额定动载荷 Dynamic load rating for 10^8 km distance.

N :容许的每分钟最大转速 The permissible maximum revolutions per minute

Kr :尺寸影响系数 Size coefficient

*1、2、3：参见下页“滚子应用”
1, 2, 3 : Refer to next page “Apply to roller”



（单位Unit : mm）

类型 Type	*1	*2	*3	Kr	Co (kN)	C1 (kN)	C2 (kN)	N_{max} (min^{-1})
7231L	BR	ER	ER	2.262	46.5	24.6	6.2	2200
7232L	BR	ER	BR					
7233L	ER	BR	ER					

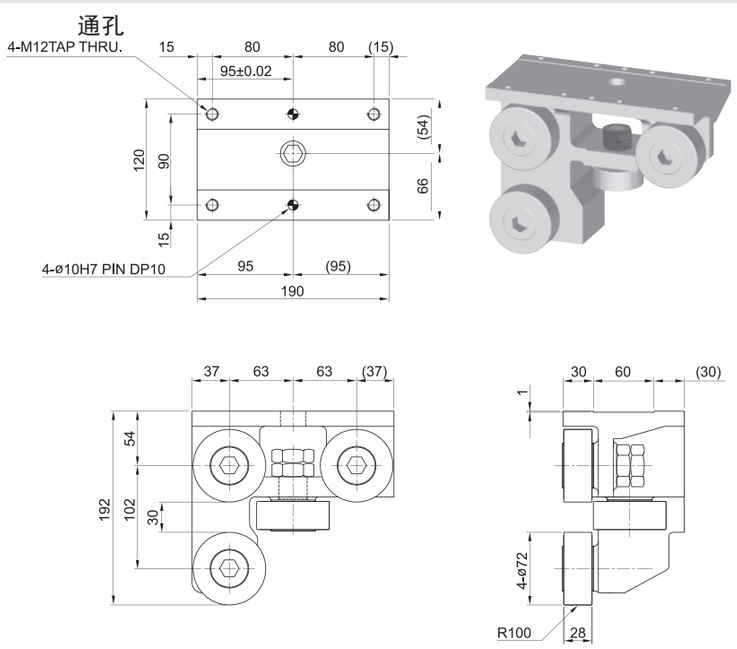
BR : 滚子轴承（非偏心）
Roller bearing (Non-eccentric)

ER : 偏心滚子轴承
Eccentric roller bearing

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滑架（4滚子）
Carriage (4 rollers)

724X型滑架（4滚子）
724X Carriage (4 rollers)



（单位Unit : mm）

Type	*1	*2	*3	*4	Kr	Co (kN)	C1 (kN)	C2 (kN)	Nmax (min-1)
7241R	BR	BR	ER	ER	2.262	88.3	36.9	9.3	2200
7242R	BR	BR	ER	BR					
7243R	ER	ER	BR	ER					

Co :额定静载荷 Static Load Rating

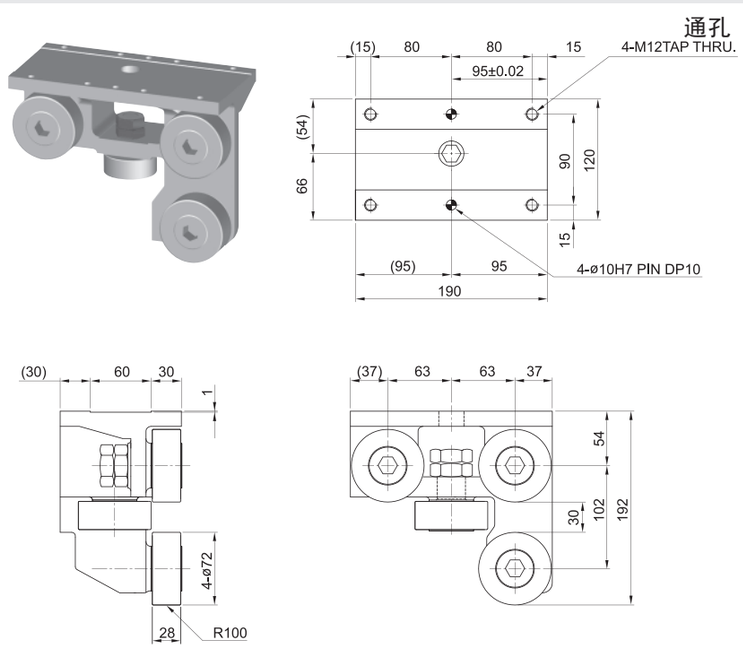
C1 :106 km行程的额定动载荷 Dynamic load rating for 10^6 km distance.

C2 :108行程的额定动载荷 Dynamic load rating for 10^8 km distance.

N :容许的每分钟最大转速 The permissible maximum revolutions per minute

Kr :尺寸影响系数 Size coefficient

*1、2、3：参见下页“滚子应用”
1, 2, 3 : Refer to next page “Apply to roller”



（单位Unit : mm）

Type	*1	*2	*3	*4	Kr	Co (kN)	C1 (kN)	C2 (kN)	Nmax (min-1)
7241L	BR	BR	ER	ER	2.262	88.3	36.9	9.3	2200
7242L	BR	BR	ER	BR					
7243L	ER	ER	BR	ER					

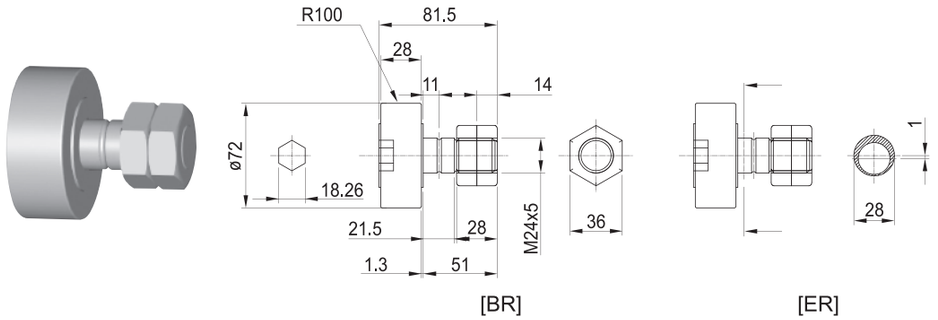
BR : 滚子轴承（非偏心）
Roller bearing (Non-eccentric)

ER : 偏心滚子轴承
Eccentric roller bearing

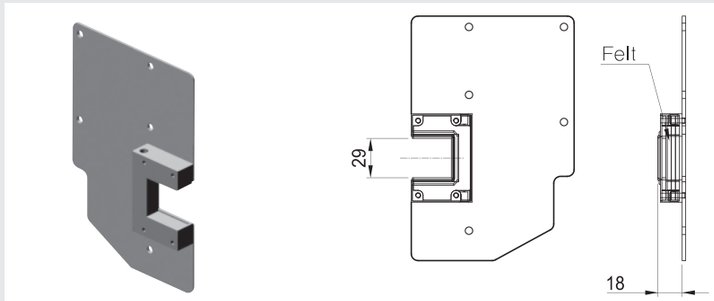
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滑架选项
Carriage Option

［滚子应用规范］
[Apply to roller specification]

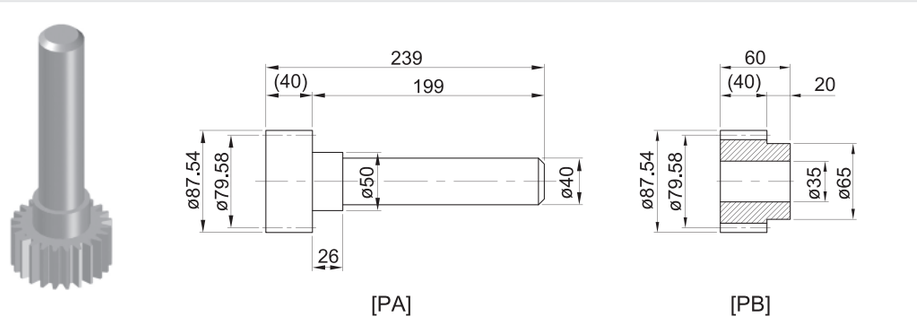


［擦拭器与润滑单元］
[Wiper and lubrication unit]



类型 Type	方向 Direction
72WR	右向 Right
72WL	左向 Left

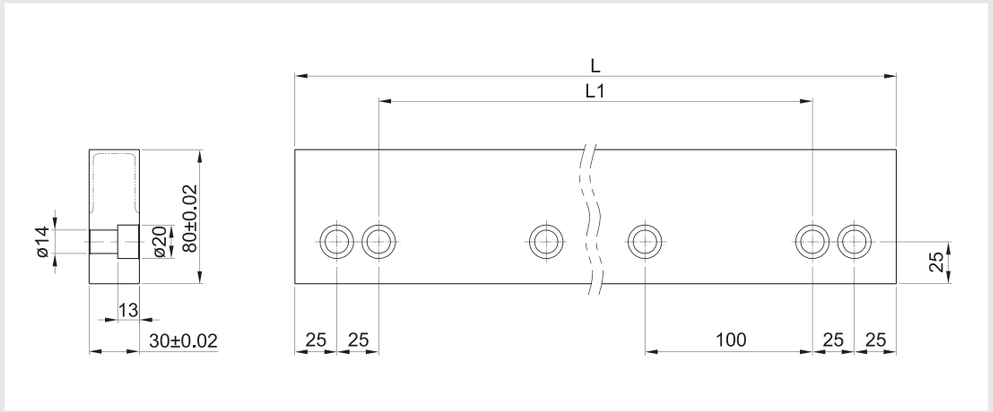
［小齿轮轮齿］
[Pinion gear]



类型 Type	Z	M	P	Mat.
PA	20	3.9789	12.5	S45C
PB	20	3.9789	12.5	S45C

Z ：轮齿数量 The number of gear
M ：模数 Module
P ：节距 Pitch
Mat. : 材料 Material

F308型
F308 Type



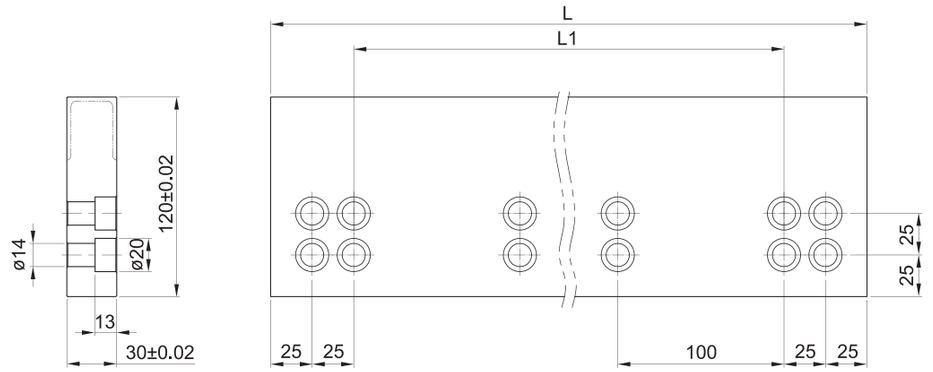
（单位Unit : mm）

型号 Model No.	L	L1	质量 Mass [kg]
F308-2000	2000	1900	34.7
F308-1200	1200	1100	20.8
F308-800	800	700	15.0

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Robot Carrier Guide

平轨
Flat Rail

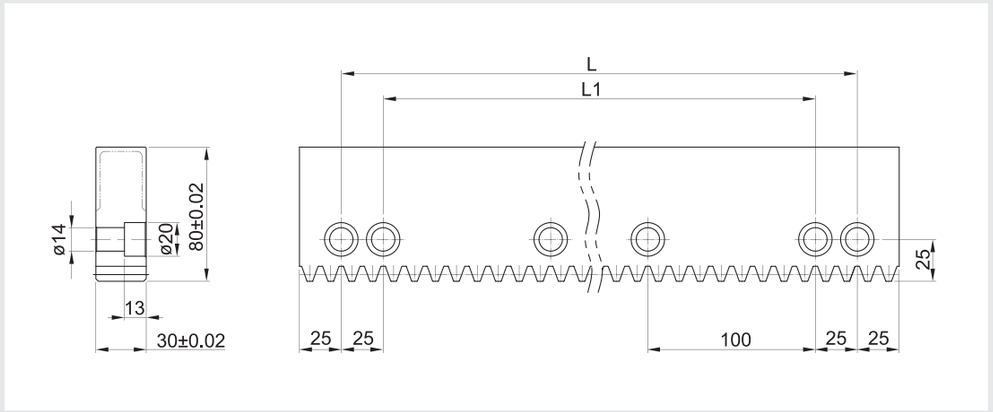
F312型
F312 Type



（单位Unit : mm）

型号 Model No.	L	L1	质量 Mass [kg]
F312-2000	2000	1900	56.1
F312-1200	1200	1100	33.7
F312-800	800	700	22.5

F308型
R308 Type



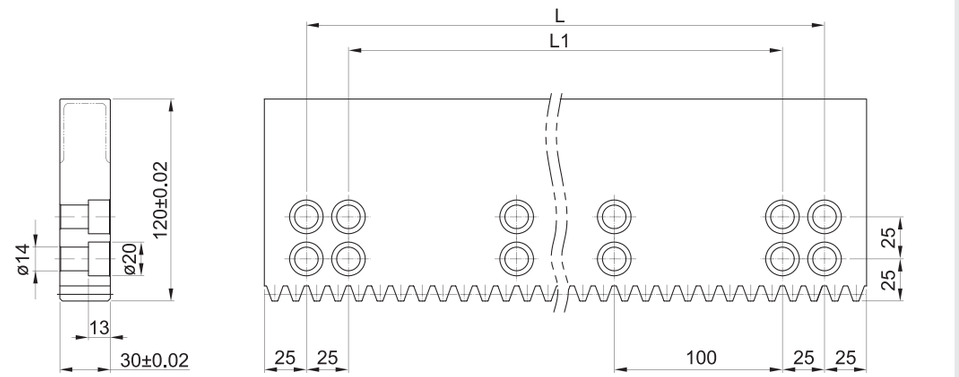
（单位Unit : mm）

型号 Model No.	L	L1	模数 Module	节距 Pich	质量[kg] Mass [kg]
R308-2000	2000	1900	3.979	12.5	35.6
R308-1200	1200	1100	3.979	12.5	21.4
R308-800	800	700	3.979	12.5	14.3

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Robot Carrier Guide

齿轨
Rack Rail

F312型
R312 Type



（单位Unit : mm）

型号 Model No.	L	L1	模数 Module	节距 Pich	质量[kg] Mass [kg]
R312-2000	2000	1900	3.979	12.5	54.3
R312-1200	1200	1100	3.979	12.5	32.6
R312-800	800	700	3.979	12.5	21.7

SBC

MEMO